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C. I. U.
XXI BOMBER COMMAND
APO 234, c/o POSTMASTER
SAN FRANCISCO, CALIFORNIA

(Combined PI Sections: 3rd Photo Recon Squadron and 35th Photo Tech Unit)

14 June 1945

FILE

DAMAGE ASSESSMENT REPORT NO. 89

90.20-198 AICHI A/C WORKS, ATSUTA PLANT
90.20-2010 AICHI A/C ENGINE WORKS, NAGOYA PLANT
35/07/24N - 136/54/00E

Mission No.: 3PR5M 278 Target Area: Nagoya (90.20)

Date Flown: 10 June 1945 Altitude: 30,000'

SUMMARY

This report assesses damage to Targets 198 and 2010 resulting from XXI Bom Com Mission 193 of 9 June 1945.

Both targets were heavily damaged. Target 198 received the greater amount with 95.7% of the total roof area damaged or destroyed (31% destroyed or structural damage; 64.7% superficial damage). Only one medium sized and 4 small buildings, distributed throughout the plant area, were left undamaged.

Target 2010 was damaged to the extent of 53% of its total roof area. The damage was concentrated in the eastern section of the plant where every building was heavily damaged or destroyed. Total damage to date to this plant amounts to 65% of its total roof area.

STATISTICAL SUMMARY OF DAMAGE

TARGET 198

Damage from current strike:	Square feet of roof	Percent of original roof area
Destroyed	291,300	24.7
Structural damage	72,200	6.1
Superficial		
1. Gutted	681,500	57.7
2. Minor roof damage	85,800	7.2
Total damage	1,130,800	95.7

Total roof area: 1,188,000 sq. ft. (this total supersedes that given in CIU Industrial Report 9 - 1,192,000 sq. ft.)

TARGET 2010

Destroyed	69,700	15.0
Structural damage	12,000	2.6
Superficial		
1. Gutted	67,000	14.4
2. Minor	101,000	21.6
Total damage	249,700	53,6

Total roof area: 467,500 sq. ft. (Ref a)

Damage Assessment Report No. 89, cont'd,

TARGET 2010

Total damage to date*

	Square feet of roof	Percent of original roof area
Destroyed	110,600	23.7
Structural damage	12,000	2.6
Superficial		
1. Gutted	79,000	16.9
2. Minor roof damage	101,000	21.6
Total damage	302,600	64.8

*All old damage has not been reported previously.

ITEMIZATION OF DAMAGE
(see following page)

ITEMIZATION OF DAMAGE

D/A Report No. 89, cont'd.

Number Ref. a	Roof area Ref a.	DAMAGE IN SQUARE FEET Destroyed	Structural	SUPERFICIAL Gutted	Minor	Total	Percent of roof	Function of building; comment
				TARGET 198				
1a	7,000	7,000				7,000	100	Probable Instrument assembly
1b	7,500				7,500	7,500	100	" " "
1c	19,000				19,000	19,000	100	" " "
2a	18,000				18,000	18,000	100	Unidentified
2b	25,000	12,000	13,000			25,000	100	"
2c	16,000		4,000	12,000		16,000	100	"
2d	4,000	4,000				4,000	100	"
3a	2,400	2,400				2,400	100	"
3b	2,600	2,600				2,600	100	Transformer house
4	13,000			13,000		13,000	100	Offices
5	13,000		3,000			3,000	23	"
6a	7,800	7,800				7,800	100	Unidentified
6b	8,400	8,400				8,400	100	"
6c	3,500	3,500				3,500	100	"
7a	44,000	20,000		24,000		44,000	100	"
7b	46,000			12,000	34,000	46,000	100	"
7c	1,400			1,400		1,400	100	"
8	4,000	4,000				4,000	100	"
10a	70,000			70,000		70,000	100	Probable fuselage assembly
10b	194,000	47,000		147,000		194,000	100	" " "
10c	4,000			4,000		4,000	100	" " "
10d	11,000	11,000				11,000	100	" " "
10e								Removed prior to strike
10f	7,500	7,500				7,500	100	Probable fuselage assembly
10g	43,000	3,000		40,000		43,000	100	" " "
10h	67,000	17,000		50,000		67,000	100	" " "
11	10,000	2,500				2,500	25	Unidentified
12a	2,700	2,700				2,700	100	"
12b	2,700	2,700				2,700	100	"
13a	8,400	8,400				8,400	100	"
13b	2,200	2,200				2,200	100	"
14	60,000	30,000		30,000		60,000	100	Machine shop
15a	15,000	15,000				15,000	100	" "

D/A Report No. 89, cont'd.

Number Ref a	Roof Area Ref a	AREA IN SQUARE FEET					Percent of roof	Function of building; comment
		Destroyed	Structural	SUPERFICIAL Gutted	SUPERFICIAL Minor	Total		
15b	35,000		15,000	20,000		35,000	100	Machine shop
15c	1,500		1,500			1,500	100	Unidentified
16a	32,500		32,500			32,500	100	"
16b	3,200		3,200			3,200	100	"
18b	9,600	9,600				9,600	100	Probable machine shop
18c	50,000	5,000		45,000		50,000	100	" " "
19a	12,000			8,000	4,000	12,000	100	" " "
19b	10,000			10,000		10,000	100	Probable heat treatment shop
19c	9,600			9,600		9,600	100	
19d	3,500			3,500		3,500	100	Unidentified
21	1,400	1,400				1,400	100	"
22	1,700	1,700				1,700	100	"
24-29	25,300	25,300				25,300	100	" (6 small buildings)
30	3,300				3,300	3,300	100	"
31a	27,000			27,000		27,000	100	Torpedo testing
31b	7,600	7,600				7,600	100	Unidentified
31c	1,400	1,400				1,400	100	"
32a	21,000			21,000		21,000	100	Iron foundry
32b	18,000			18,000		18,000	100	" "
33	4,300			3,000		3,000	70	Unidentified
35a	17,000			17,000		17,000	100	"
35b	25,000			25,000		25,000	100	"
36	30,000			30,000		30,000	100	"
37	16,000			16,000		16,000	100	"
38B	25,000			25,000		25,000	100	"
39-43	18,600	18,600				18,600	100	" (5 small buildings)
	TOTALS:	291,300	72,200	681,500	85,800	1,130,800		

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D/A Report No. 89, cont'd.

Number Ref a	Roof area Ref a	AREA IN SQUARE FEET SUPERFICIAL Destroyed	Structural	Gutted	Minor	Total	Percent of roof	Function of building; comment
				TARGET 2010				
1a	8,200	8,200				8,200	100	Offices and Cafeteria
1b	8,300	8,300				8,300	100	" " "
1c	1,300	1,300				1,300	100	" " "
2	6,200	6,200				6,200	100	Offices
3a	4,500	4,500				4,500	100	Parts factory & assembly
3b	112,000	25,000	10,000	37,000	40,000	112,000	100	" " " "
3d	36,000				18,000	18,000	50	" " " "
3e	10,000				10,000	10,000	100	" " " "
3f	7,000				7,000	7,000	100	" " " "
3g	7,000				1,000	1,000	15	" " " "
4a	7,000				7,000	7,000	100	Probable parts factory
4b	7,000				7,000	7,000	100	" " "
6a	20,000			20,000		20,000	100	Foundry & Storage
6b	20,000	8,000	2,000	10,000		20,000	100	" "
7a	6,500	6,500				6,500	100	Storage
7c	1,700	1,700				1,700	100	"
8	4,200				4,200	4,200	100	
9	7,000				7,000	7,000	100	
*18	49,000			12,000				Previously damaged and unreported
*20	4,500	4,500						(Not included in present total but included in total damage to date.)
TOTALS:		69,700	12,000	67,000	101,200	249,900		

References: a. CIU Industrial Report 9
b. CIU Damage Assessment Report 32

Photography: Pre-strike: 3PR5M222-2:37-39
Post-strike: 3PR5M278-3L:98-100

Inclosures: 1. Annotated enlargement showing damage
2. Post-strike print 3PR5M278-3L:99

Approved E.W. Webster 1st Lt AC
for HAMILTON D. DARBY
MAJOR, AC

DISTRIBUTION: "B"

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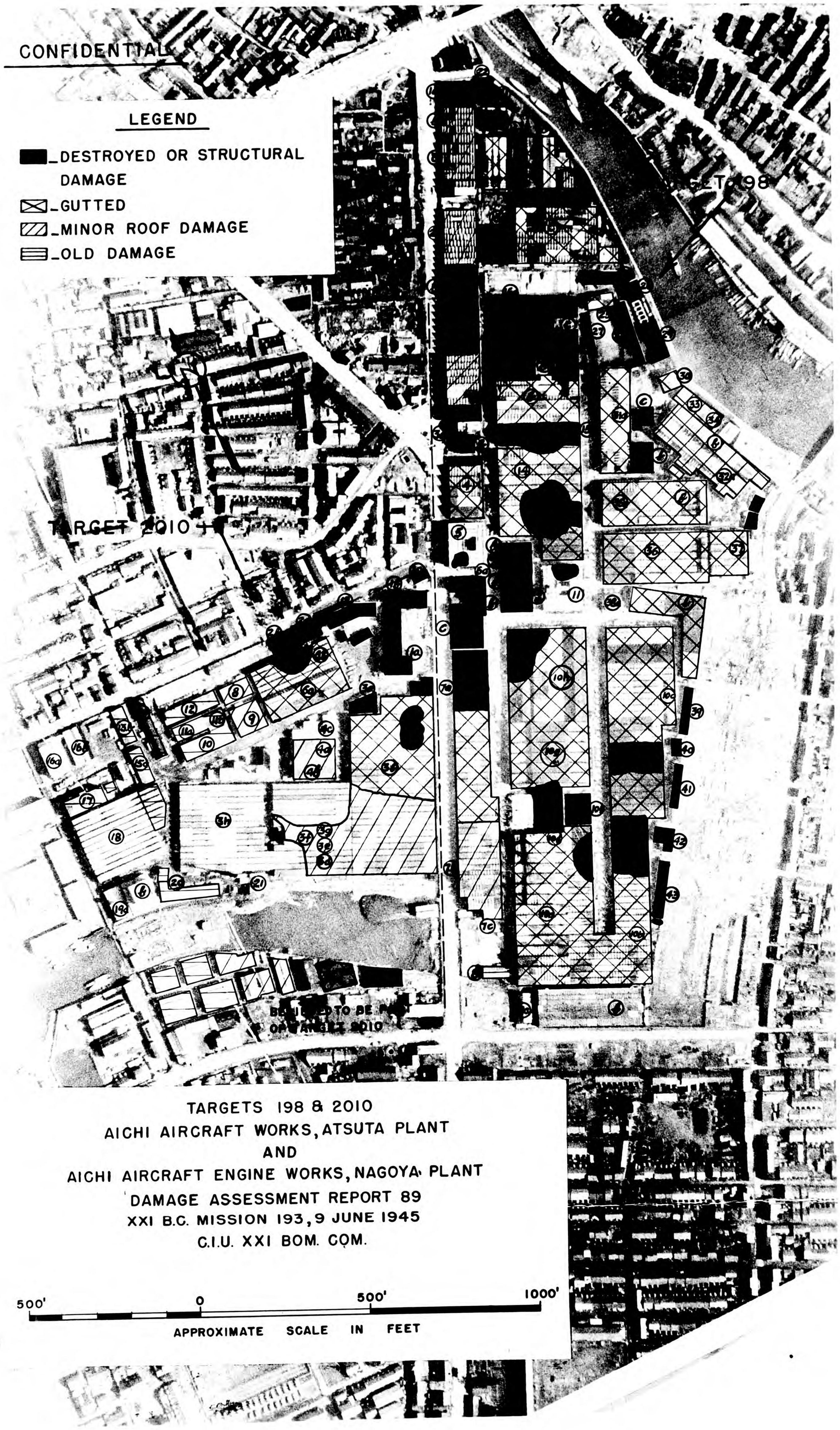


TARGETS 198 & 2010
AICHI AIRCRAFT WORKS, ATSUTA PLANT
AND
AICHI AIRCRAFT ENGINE WORKS, NAGOYA PLANT
DAMAGE ASSESSMENT REPORT 89
XXI B.C. MISSION 193, 9 JUNE 1945
C.I.U. XXI BOM. COM.

3PRSM218 - 3L 44
CONFIDENTIAL
100 K

Walker - Check this: 05 7 trucks 198 is marked in wrong place 07 08 09 10 SWS

NAGOYA AREA

AICHI AIRCRAFT WORKS

ATSUTA PLANT

TARGET NO. 90.20-198

35° 07' N - 136° 54' E

ELEVATION 10 FT. (APPROX)

FEBRUARY 1945

A-2 SECTION

XXI BOMBER COMMAND

3RD PHOTO RCN SQ PHOTOS

17 JANUARY 1945

PREPARED BY 949TH ENGR AVN TOPO CO

198

194

N

MAG DEC 6°01' W
ANNUAL CHANGE 2' INC

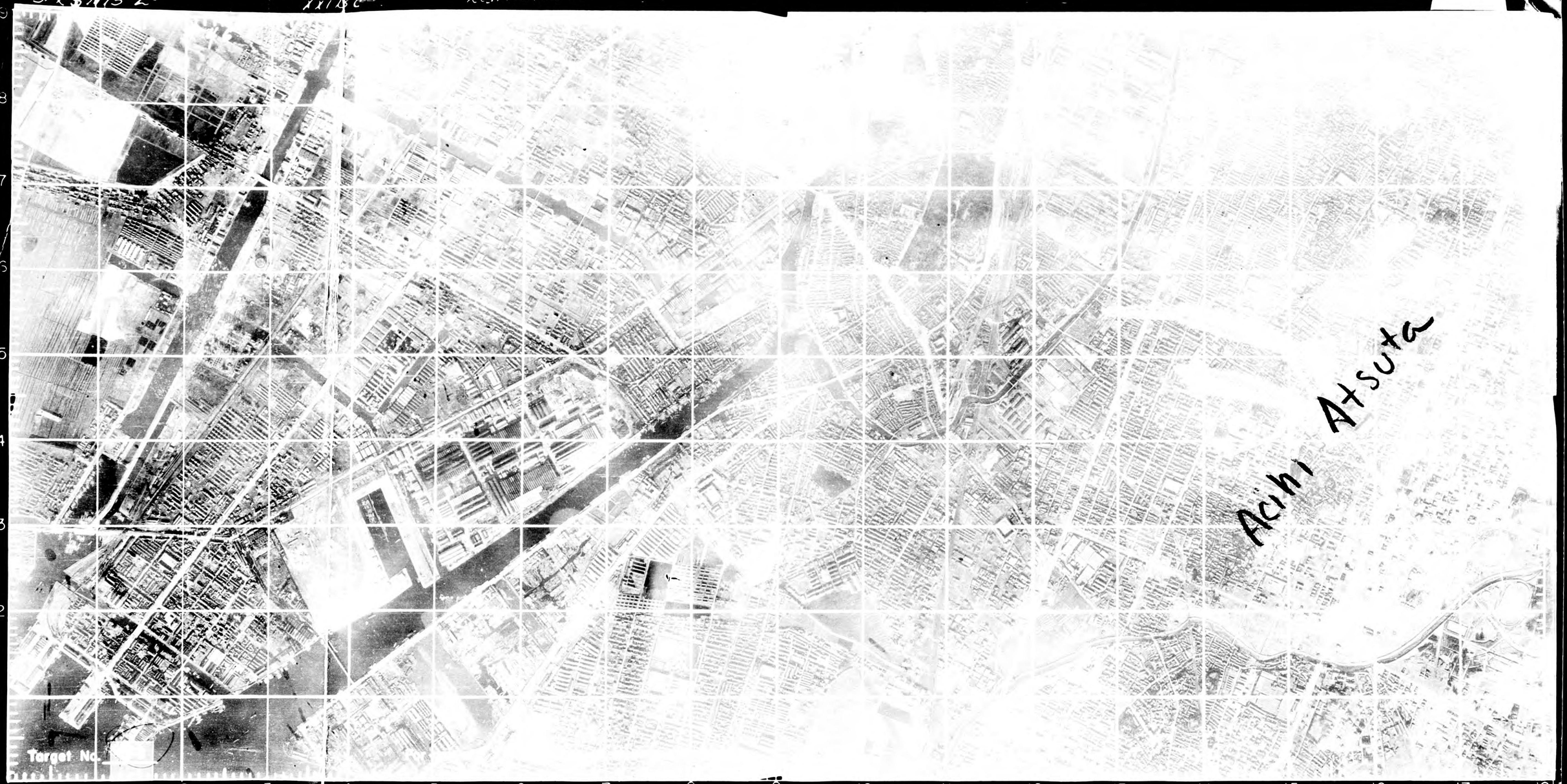
APPROX SCALE

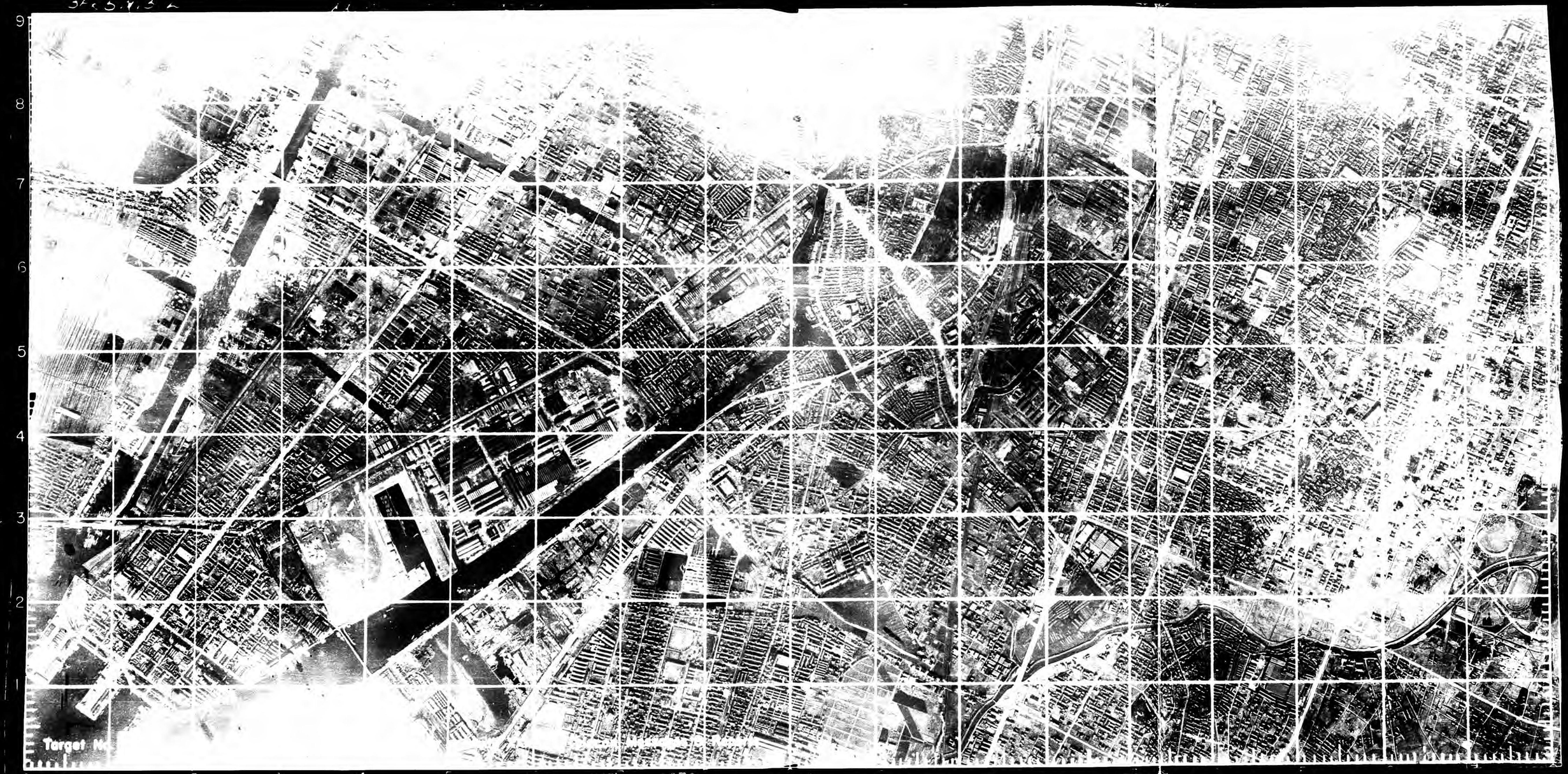
1000 0 1000 2000 3000 4000 FEET

TARGET 198 - AICHI AIRCRAFT WORKS, ATSUTA PLANT

SEE INDUSTRIAL REPORT NO. 9 (C.I.U.) FILED IN

TARGET FOLDER #2010


Aichi Atsuta
Target No.


Target

TARGET NO. 90.20-2010

APPROX. COORDINATES 35° 07′ N 136° 54′ E

PHOTOGRAPHED 23 NOV. 1944

JOINT TARGET GROUP-WASHINGTON, D. C.

AICHI AIRCRAFT ENGINE WORKS

NAGOYA CITY, JAPAN

0 2000 4000 6000 FEET

0 ½ 1 MILE

1:32 000 APPROX.

ILLUSTRATION NO. 90.20-2010 P2

ISSUED JANUARY 1945

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MAY BE TAKEN INTO THE AIR IF DATA IS TRIMMED OFF

TYPE A

TARGET NO.90.20-2010

APPROX. COORDINATES 35° 07′ N 136° 54′ E

PHOTOGRAPHED 23 NOV. 1944

JOINT TARGET GROUP-WASHINGTON, D. C.

AICHI AIRCRAFT ENGINE WORKS

NAGOYA CITY, JAPAN

0 2000 4000 6000 FEET

0 ½ 1 MILE

1:32 000 APPROX.

ILLUSTRATION NO. 90.20-2010 P2

ISSUED JANUARY 1945

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198 Aichi Aircraft Works, Atsuta Plant
2010 Aichi Aircraft Engine Works

10 09 08 07 06 05 04 03 02 01 V 0

0 H → 01 02 03 04 05 06 07 08 09 10 11 12 13 14

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TARGET NO. 90.20-2010

APPROX. COORDINATES 35° 07′ N 136° 54′ E

PHOTOGRAPHED 23 NOV. 1944

JOINT TARGET GROUP-WASHINGTON, D. C.

AICHI AIRCRAFT ENGINE WORKS

NAGOYA CITY, JAPAN

0 2000 4000 6000 FEET

0 ½ 1 MILE

1:32 000 APPROX.

ILLUSTRATION NO. 90.20-2010 P1

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TYPE A

TARGET NO.90.20-2010

JOINT TARGET GROUP-WASHINGTON, D. C.

AICHI AIRCRAFT ENGINE WORKS

NAGOYA CITY, JAPAN

ILLUSTRATION NO. 90.20-2010 P3

APPROX. COORDINATES 35° 07′ N 136° 54′ E

PHOTOGRAPHED 23 NOV. 1944

ISSUED JANUARY 1945

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0 500 1000 1500 2000 2500 3000 FEET

0 ¼ ½ MILE

1:6000 APPROX.

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TYPE B

TARGET NO. 90.20-2010

APPROX. COORDINATES 35° 07′ N 136° 54′ E

PHOTOGRAPHED 23 NOV. 1944

JOINT TARGET GROUP-WASHINGTON, D. C.

AICHI AIRCRAFT ENGINE WORKS

NAGOYA CITY, JAPAN

0 2000 4000 6000 FEET

0 ½ 1 MILE

1:32 000 APPROX.

ILLUSTRATION NO. 90.20-2010 P1

ISSUED JANUARY 1945

RESTRICTED

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RESTRICTED

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TYPE A

TARGET NO. 90.20-2010

JOINT TARGET GROUP-WASHINGTON, D. C.

AICHI AIRCRAFT ENGINE WORKS

NAGOYA CITY, JAPAN

ILLUSTRATION NO. 90.20-2010 P

APPROX. COORDINATES 35° 07′ N 136° 54′ E

PHOTOGRAPHED 23 NOV. 1944

0 2000 4000 6000 FEET

0 ½ 1 MILE

1:32 000 APPROX.

ISSUED JANUARY 1945

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198 Aichi Aircraft Works, Atsuta Plant
2010 Aichi Aircraft Engine Works

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CONFIDENTIAL

MAY BE TAKEN INTO THE AIR IF DATA IS TRIMMED OFF

TYPE A

TARGET NO.90.20-2010

JOINT TARGET GROUP-WASHINGTON, D. C.

AICHI AIRCRAFT ENGINE WORKS

ILLUSTRATION NO. 90.20-2010 P3

APPROX. COORDINATES 35° 07′ N 136° 54′ E

NAGOYA CITY, JAPAN

ISSUED JANUARY 1945

PHOTOGRAPHED 23 NOV. 1944

0 500 1000 1500 2000 2500 3000 FEET

0 1/4 1/2 MILE

1 6000 APPROX.

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NOT TO BE TAKEN INTO THE AIR

TYPE B

I, B, 1

AICHI CLOCK AND ELECTRIC CO. - ATSUTA PLANT

90.20-198

FOR PRODUCTION RATES, See MIS No. 84 JAPANESE AIRCRAFT MAKERS' PLATES AND MARKINGS

R/S 14755

Filed I,B,(1)

AICHI Aircraft Works, ATSUTA Plant

NAGOYA

Target No. 198

Bomb and Fuse Recommendations

Bomb	Fuse Delay Nose	Fuse Delay Tail		Weight of Attack, Tons 33 1/3% Struct. Damage	Weight of Attack, Tons 50% Struct. Damage
500-lb. GP.	0.01*	0.01	Engine plant	20	35
			Aircraft parts & Assembly	40	60
			Total	60	95

THESE ESTIMATES INCLUDE NO ALLOWANCE FOR ABORTIVE SORTIES OR FOR GROSS AIMING ERRORS.

* If 0.01 delay nose fuse is not available, substitute 0.1 delay nose fuse.

Alternate bomb is 1000-lb. GP fused as above.

4 Jan 44

AICHI A/C Works, Atsuta Plant
Nagoya
Target #198

Dive and glide: 500# GP MAE = 7000'

Note: Bond on final PRISIC overlay.

Engine plant:

467,500 ✓ x 1.0135 $^{\times 10^{-4}}$ = 47 bombs

50% for gullows = 24

Total for 1/3 damage = 71 bombs = 18 tons

467,500 x 1.7329 x 10^{-4} = 81 bombs

50% for gullows = 41

Total for 50% damage = 122 bombs = 31 tons

A/C Parts Assembly:

925,000 ✓ x 1.0135 $^{\times 10^{-4}}$ = 94 bombs

50% for gullows = 47

Total for 1/3 damage = 141 bombs = 36 tons

925,000 x 1.7329 $^{\times 10^{-4}}$ = 160 bombs

50% for gullows = 80

Total for 50% damage = 240 bombs = 60 tons

4 Jan 44

AICHI A/C WORKS, ATSUTA PLANT
NAGOYA
TARGET NO. 198

Vital Areas:

Engine Plant:

200 X 500	=	100,000
300 X 100	=	30,000
500 X 350		175,000
250 X 600		150,000
250 X 50	=	~~10,000~~ 12,500
Total	=	467,500

A/C Parts + Assembly

400 X 500	=	200,000
150 X 550	=	82,500
400 X 650	=	260,000
750 X 200	=	150,000
100 X 300	=	30,000
300 X 450	=	135,000
150 X 300	=	45,000
150 X 150	=	22,500
		925,000

ROUGH ESTIMATE

Target No. 198
AICHI Aircraft Works
Atsuta Plant
Nagoya

Dive and glide: 500# GP MAE = 4000'

Note: Computations are based on measurements scaled from incomplete overlays in P.R.I.S.I.C. and are necessarily rough and subject to change.

Engine plant:

Area = 1250 × 700 + 600 × 300 = 1,055,000 sq'
(875,000 + 180,000)

1,055,000 × 1.0135 × 10^{-4} = 107 bombs

50% for spillover = 54

Total for 1/3 damage = 161 bombs = 40 tons

1,055,000 × 1.7329 × 10^{-4} = 183 bombs

50% for spillover = 92

Total for 1/2 damage = 275 bombs = 69 tons

A/C Part and assembly:

Area = 700 × 1200 + 400 × 600 + 200 × 300 = 1,140,000 sq'
(840,000 + 240,000 + 60,000)

1,140,000 × 1.0135 × 10^{-4} = 116 bombs

50% for spillover = 58 bombs

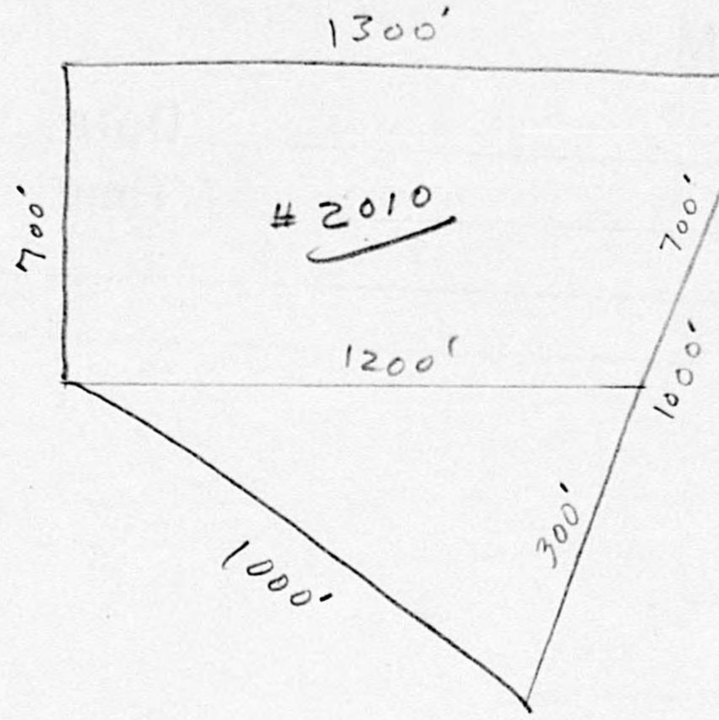
Total for 1/3 damage = 174 bombs = 44 tons

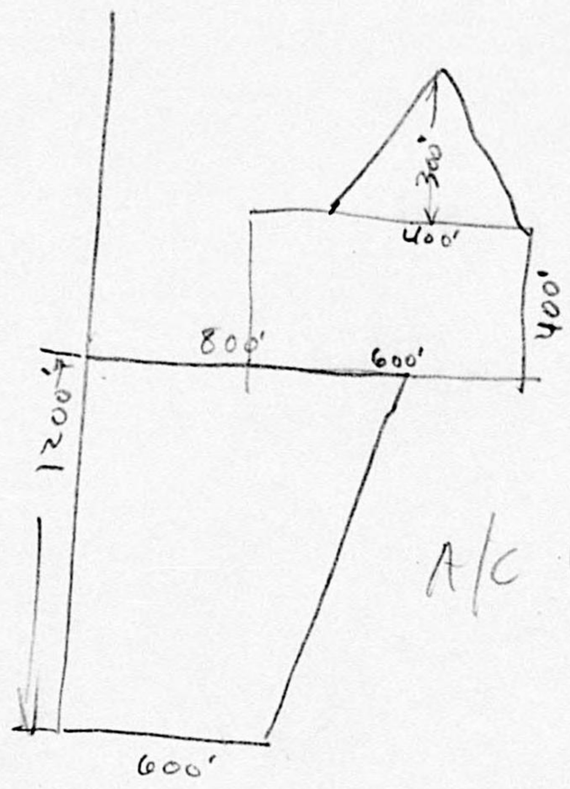
1,140,000 × 1.7329 × 10^{-4} = 198 bombs.

50% for spillover = 99

Total for 1/2 damage = 297 bombs = 74 tons

No. ~~145~~ 198 & 2010
Aichi A/C Works
At suita Plant
Nagoya
Engine plant.





#198
A/C Part + assembly

NOT TO BE TAKEN INTO AIR

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JOINT TARGET GROUP, WASHINGTON, D.C.
TARGET INFORMATION SHEET

Sheet No.90.20-2010-TI
Date 20 Dec. 1944
Page No. 1 (2 pages)

Obj. Folder 90.20
Obj. Area 90.20
AAF Target No. 90.20-2010

Place Nagoya, Japan
Category Aircraft

Lat.: 35°07'N
Long: 136°54'E
Alt.: 10 feet

NAME OF TARGET AICHI AIRCRAFT ENGINE WORKS, NAGOYA PLANT

ALL PREVIOUS SHEETS CANCELLED

NOTE: Air Objective Folder Nagoya, 90.20, issued 6 July 1944, lists this installation as a reported new engine plant - an extension of Aichi Aircraft Works (TARGET 90.20-198). This new plant is now designated as Aichi Aircraft Engine Works (TARGET 90.20-2010) to distinguish it from the larger old plant (TARGET 90.20-198) now reported to be concentrating on torpedoes, shells, and other munitions.

SIGNIFICANCE

This plant produces the 1200 HP, 12 cylinder in line Atsuta engine used in the Navy single engine dive bomber Judy. Estimated monthly production is 180 engines, a small fraction of total Japanses aero-engine output. Mines, torpedoes and other ordnance are also reported in production here.

LOCATION

In Nagoya, 2½ miles S of the center of the city and 4 miles S of Nagoya castle. Two branches of the Hori River junction about 1600 ft to the E. From this point the river flows SW into Nagoya Harbor about 2 miles S of the plant. An E-W canal now terminates at the SW corner of the plant compound. The old section of this canal along the S side of the plant is partly filled in. A main NE-SW highway separates the the plant from the older Aichi Works (TARGET 90.20-198) adjacent on the E.

DESCRIPTION AND LAYOUT

(Refer to Illustration No. 90.20-2010 P3). The total target area extends about 1350 ft E-W and varies in width from about 600 ft on the W side to 1100 ft on the E. The area is compactly built-up. The important machine tools used in engine manufacture are contained in the large L-shaped building 3 which has a total area of 315,000 sq ft. Engine assembly is also believed carried on in this building. Additional engine parts manufacture and machining facilities are immediately adjacent to the W (building 18); the foundry (building 6) is adjacent on the N. The cluster of small buildings in the NW corner of the compound is used for the manufacture of 13 mm ammunition. These buildings contain rows of old model lathes set on tables.

No engine test cells can be identified at the plant on photography of 23 Nov. 1944. Engine testing may be carried on away from the plant or in one of the shed type structures SW of building 3.

CONSTRUCTION & VULNERABILITY

Buildings housing the critical processes are mostly one-story, short-span (18 ft x 30 ft bays) buildings with sawtooth roofs about 20 ft high to the eaves. There are a few one-story, gabled roof, shed buildings of the same height having medium length spans. All buildings are probably of steel frame construction with roofs of corrugated asbestos or iron.

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JOINT TARGET GROUP - WASHINGTON, D.C.
TARGET INFORMATION SHEET *(Contd.)*

PRIMARY OBJECTIVES	(Refer to Illustration No. 90.20-2010 P3). The large main building 3. Destruction would affect the principal machine tool area of the plant.
WEAPON RECOMMENDATIONS	Instructions with regard to weapons will usually be given in Field or Operational Orders, but in the absence of such specific instructions and to assist Planners in formulating such orders the following information is given: A combined attack with HE and incendiary weapons is recommended. A preliminary structural and occupancy analysis of the plant indicates the following weapons would be most effective: AN-M64 500 lb. GP, fuzed 0.1 sec nose/0.01 sec tail. AN-M50 4 lb. I.B. (in M17 clusters). The 500 lb. G.P. is selected as the most effective weapon as the primary buildings, housing vital machine tools, are of one-story, short spans, and therefore not subject to spreading collapse. The 0.01 sec tail fuzing will cause the bomb to explode 6'to 10 feet beneath the roof and thereby greatly damage machines as well as the structure. Multiplicity of hits, obtainable with the AN-M50 bomb, is desirable in order to ignite the combustible portion of the contents as the principal structures are non-combustible and the spread of fire is unlikely. Penetration of the 4 lb. bomb will be satisfactory as the roofs are reasonably light.
LEVEL OF DAMAGE	
CAMOUFLAGE, DECOYS AND SMOKE SCREENS	Photography of 23 Nov. 1944 shows some disruptive roof painting. There is no evidence of decoy buildings and no smoke screens have been reported.
ADDITIONAL INFORMATION	An Atsuta engine may also be used in the new planes Seiran and Nanzan, and two of the engines may be used in the Reiun, an experimental land based reconnaissance plane.

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BRITISH SERVICES FOR THE USE OF ALLIED FORCES.

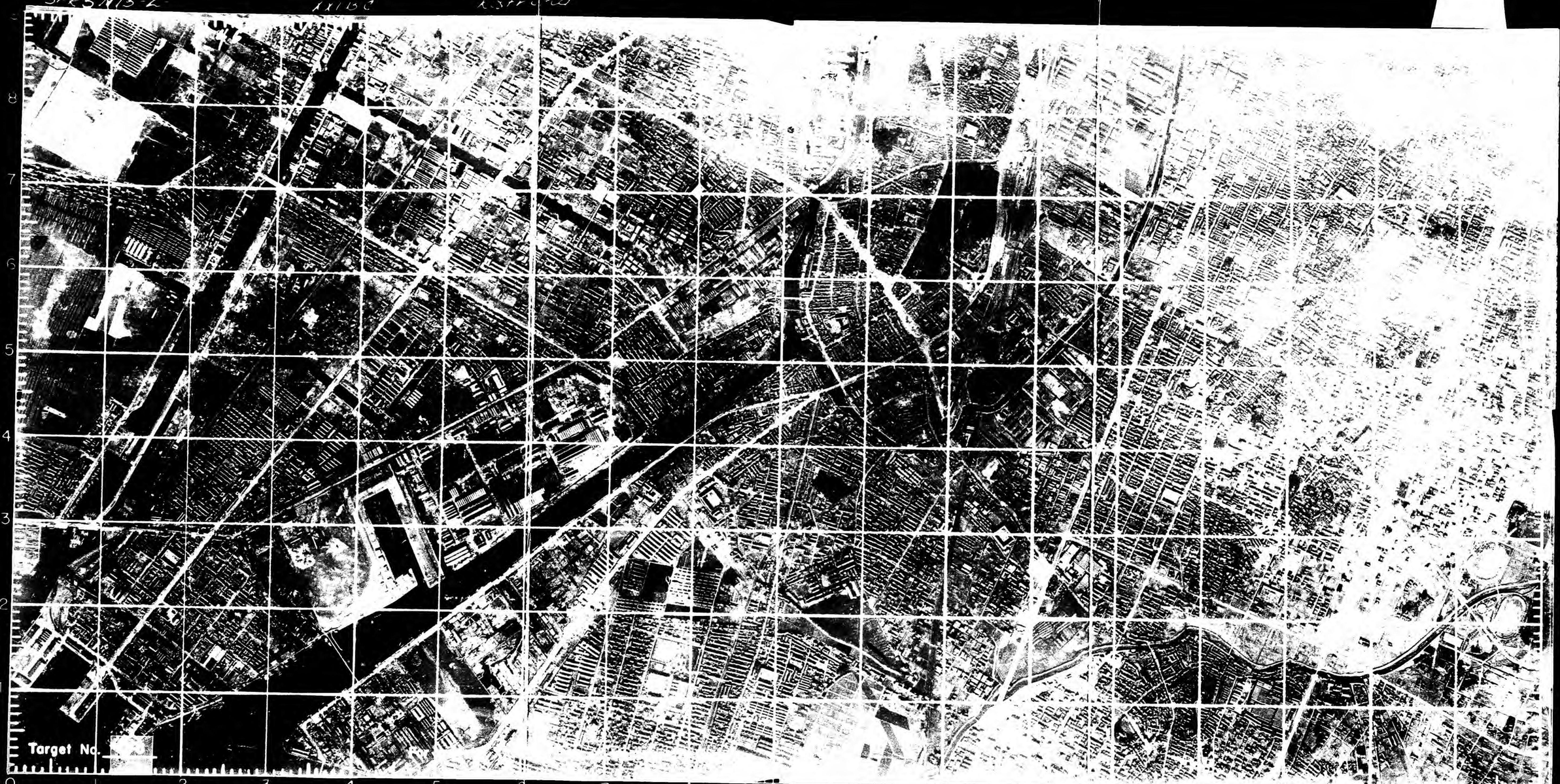
PRIMARY OBJECTIVES	(Refer to Illustration No. 90.20-2010 P3). The large main building 3. Destruction would affect the principal machine tool area of the plant.
WEAPON RECOMMENDATIONS	Instructions with regard to weapons will usually be given in Field or Operational Orders, but in the absence of such specific instructions and to assist Planners in formulating such orders the following information is given: A combined attack with HE and incendiary weapons is recommended. A preliminary structural and occupancy analysis of the plant indicates the following weapons would be most effective: AN-M64 500 lb. GP, fuzed 0.1 sec nose/0.01 sec tail. AN-M50 4 lb. I.B. (in M17 clusters). The 500 lb. G.P. is selected as the most effective weapon as the primary buildings, housing vital machine tools, are of one-story, short spans, and therefore not subject to spreading collapse. The 0.01 sec tail fuzing will cause the bomb to explode 6 to 10 feet beneath the roof and thereby greatly damage machines as well as the structure. Multiplicity of hits, obtainable with the AN-M50 bomb, is desirable in order to ignite the combustible portion of the contents as the principal structures are non-combustible and the spread of fire is unlikely. Penetration of the 4 lb. bomb will be satisfactory as the roofs are reasonably light.
LEVEL OF DAMAGE	
CAMOUFLAGE, DECOYS AND SMOKE SCREENS	Photography of 23 Nov. 1944 shows some disruptive roof painting. There is no evidence of decoy buildings and no smoke screens have been reported.
ADDITIONAL INFORMATION	An Atsuta engine may also be used in the new planes Seiran and Nanzan, and two of the engines may be used in the Reiun, an experimental land based reconnaissance plane.

PUBLISHED IN OFFICE OF AC/AS INTELLIGENCE,
A.A.F., BY COMBINED PERSONNEL OF U.S. AND
BRITISH SERVICES FOR THE USE OF ALLIED FORCES.

90.20.-198 - Aichi Aircraft Works, Atsuta Plant

Aichi Aircraft Works, Atsuta Plant	35° 07' N 136° 54' E	Expanded approximately one third. Now covers area of about 119,000 square yards. Major target.	Mosaic 217

(PIS-2 Target Folder Japan No. 7, 23 Nov. 1944)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UNITED STATES PACIFIC FLEET
AND PACIFIC OCEAN AREAS
HEADQUARTERS OF THE COMMANDER IN CHIEF

3CG/as

CONFIDENTIAL

4 January 1945 Serial DIS-041330.

From: Commander in Chief, U. S. Pacific Fleet and Pacific Ocean Areas.
To : Distribution List.

Subj: Special Advance Report No. A1 - 45, NAGOYA TARGETS.

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By direction.

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SPECIAL ADVANCE REPORT NO. A1-45

NAGOYA TARGETS

This is a preliminary report devoted to locating some of the more important targets in NAGOYA and to a complete identification of the ATSUTA and EITOKU plants of the AICHI A/C Works. For background information on these areas see:

Army Air Objective Folder 90.20

CINCPAC-CINCPOA Bulletin No. 112-44

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(A) Sketch map of AICHI ATSUTA Plant, Target No. 198

(B) Annotated photo of AICHI EITOKU Plant, Target No. 1729

(C) Uncontrolled annotated mosaic of NAGOYA (as of 23 Nov. 1944)

Note: Photo interpretation and POW interrogations in this report are based on photos taken by the XXI Bomber Command.

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SPECIAL ADVANCE REPORT

NAGOYA TARGETS

AICHI A/C WORKS, ATSUTA PLANT, TARGET No. 198

The AICHI Aircraft Works, ATSUTA Plant (35° 07' N., 136° 54' E), is located on the west side of the HORI River, one-half mile southwest of the JUKUDEN Shrine. It is approximately two miles north of NAGOYA Harbor, Target No. 251, and about four miles south of NAGOYA Castle. Detailed information concerning the plant was obtained from a POW who worked there from August 1939 until February 1940. Through contacts with friends POW was able to give hearsay evidence concerning the plant's activities until the time he entered the Army (Dec 1943). This evidence is not contradicted by photo interpretation or the data given in Air Objective Folder 90.20, page 24.

The plant covers an area of approximately 2,500,000 sq. ft. and is divided into four parts: instruments, ordnance, A/C parts and assembly, and A/C engines. The area occupied by each of these sections is shown on the attached sketch map as A, B, C, D, respectively. Inasmuch as the AICHI company was formerly engaged in the manufacture of watches and other precision instruments, the transition to aircraft instruments was not a radical one. This work is carried on in the buildings at the north end of the plant area. POW worked in Building No. 5 which in 1940 was engaged in the production of precision ordnance equipment such as mines, torpedoes, etc. This building is believed to be still employed on ordnance work, but in addition it is used in connection with the production of aircraft (probably largely fuselage) parts. The pond, 95' x 180', and Building No. 2 are used for torpedo testing.

The plant is not engaged in the final assembly of aircraft. Sub-assembly is completed and the parts shipped by truck to final assembly plants located near airfields where the completed wing, tail, and fuselage assemblies are finally put together. POW believed that in 1940 only K.1Es were being produced. No engine test buildings have been identified on the aerial photographs, but POW insists that engine tests are made in Building No. 18. POW has never actually visited the test area but while a student in the trade school (Building No. 14) he continually heard the usual engine roar, coming apparently from the southern end of the Building No. 18, and was told that testing was done there. POW believed that completed castings of engine parts were delivered to the factory from outside. The foundry, Building No. 4, was largely employed by the ordnance section, but did do some work for the other sections. POW indicated that the manufacture of propellers was "secret", but intimated that they were produced in the SUMITOMO Light Metal Plant located just south of the A/C parts and assembly section.

Buildings

The majority of the buildings are modern steel frame, sawtooth roof construction. The roofs are covered with a slate-asbestos composition roofing, and are camouflaged with disruptive painting. The floors are concrete, and the sides are largely glass.

The former NAGOYA Municipal Airport, located about three-quarters of a mile south of the AICHI EITOKU Plant, is now used by the AICHI and MITSUBISHI A/C Companies. Planes from both companies are brought to the field by truck or by barge. Smaller planes are brought in intact but larger models, such as BETTY, come with wings detached. MITSUBISHI has shops on the field where the final assembly is carried out.

All planes were Navy and included ZEKE, JUDY, VAL, BETTY, and DINAH (possibly the Navy version; POW insisted that only Navy planes used the field). About 25 took off daily for SUZUKA and NAGOYA East (IBOGAHARA) Airfields.

Annotated Uncontrolled Mosaic, NAGOYA Area

The following list of targets is not inclusive but is a selection of those on which available POWs could supplement or correct AOF 90.20 information. Target numbers are those assigned by AOF 90.20 except those preceded by "P" assigned by INTERPRON TWO, and those preceded by "A" temporarily assigned and awaiting permanent members.

KEY

193..MITSUBISHI Aircraft Engine Works
194..MITSUBISHI Aircraft Works
195..NAGOYA #1 Steam Power Plant
196..CHIGUSA Factory of NAGOYA Arsenal
197..ATSUTA Factory of NAGOYA Arsenal
198..AICHI Aircraft Works, ATSUTA Plant
199..AICHI Aircraft Works, MIZUHO Branch
241..NIPPON Vehicle Mfg. Co.
242..OKAMOTO Aircraft Works, SHOWA Plant
247A..DAIDO Electric Steel, OE Plant
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1171..NIPPON Insulator Co.
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1799..HOKOKU Machinery Co., KASADERA Plant
1806..OKUMA Iron Works, KACHIKAWA Plant
1809..HOKOKU Machinery Co., ATSUTA Plant
1818..TOKUSHU Light Metals Co., ATSUTA Plant
1823..TOKAI Electrode Co., NAGOYA #1 Plant
1824..TOKAI Electrode Co., NAGOYA #2 Plant
P36..NAIGAI Spinning Mill
P38..Possible Cement Plant in NW; remainder small machine shops
P39..NAIGAI Spinning Mill
P40..TOYO Spinning Mill, now MITSUBISHI A/C Engine Parts
P41..DAI NIPPON Spinning Mill, now reportedly NAKAJIMA A/C Plant
P43..Brick Co.
P44..SUMITOMO Light Metal Co.
P58..Firing range
P59..NISSHIN Spinning Mill
P62..TOYO Spinning Mill
P64..TORIIMATSU Arsenal
A-1..TAKANO Precision Co.; reportedly manufacturing MGs, small arms, ammo.
A-2..Small automobile repair shops

SKETCH MAP OF

AICHI AIRCRAFT WORKS, ATSUTA PLANT, NAGOYA CITY

LAT. 35°07'N., LONG. 136°54'E.

TARGET NO. 198

APPROXIMATE SCALE IN FEET

500 0 500 1000 1500

BASED ON SORTIE 3PR-4M17-2, OF 23 NOVEMBER 1944
XXI BOMBER COMMAND

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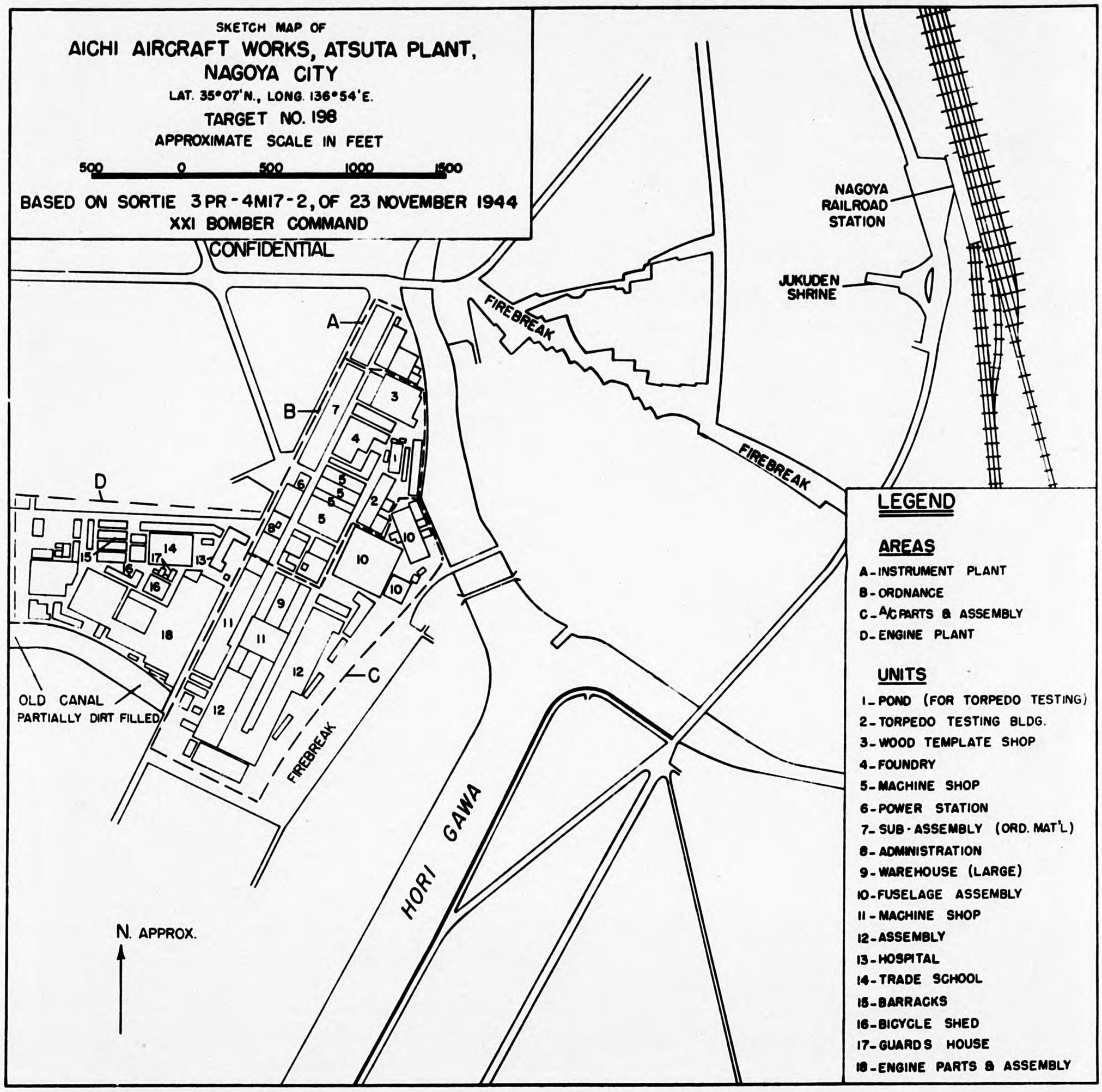


LEGEND

AREAS

A - INSTRUMENT PLANT
B - ORDNANCE
C - A/C PARTS & ASSEMBLY
D - ENGINE PLANT

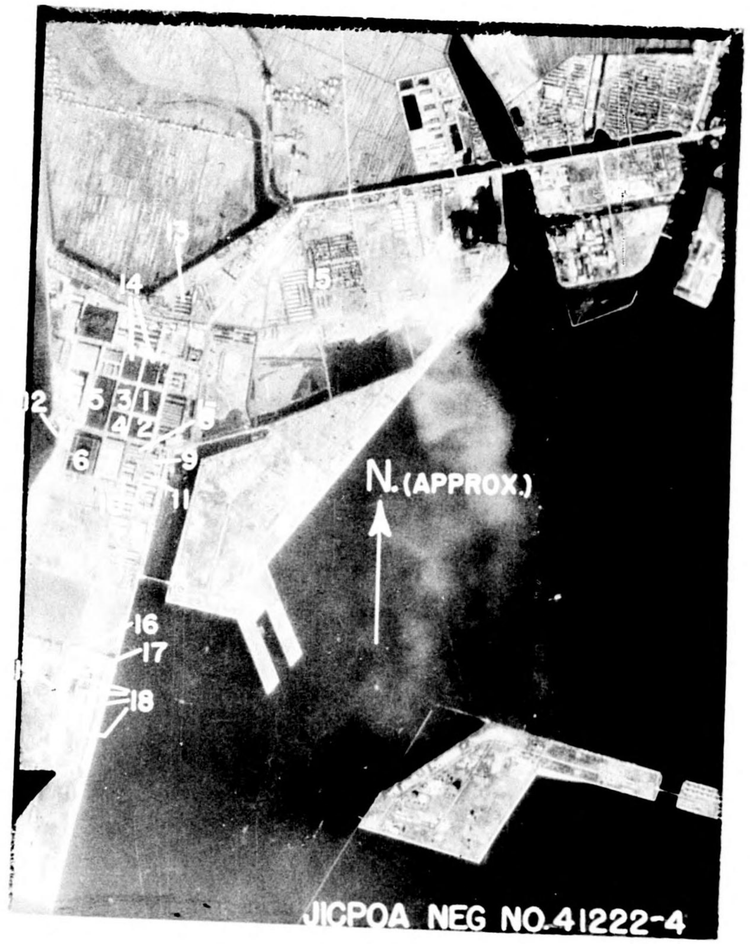
UNITS

1 - POND (FOR TORPEDO TESTING)
2 - TORPEDO TESTING BLDG.
3 - WOOD TEMPLATE SHOP
4 - FOUNDRY
5 - MACHINE SHOP
6 - POWER STATION
7 - SUB-ASSEMBLY (ORD. MAT'L)
8 - ADMINISTRATION
9 - WAREHOUSE (LARGE)
10 - FUSELAGE ASSEMBLY
11 - MACHINE SHOP
12 - ASSEMBLY
13 - HOSPITAL
14 - TRADE SCHOOL
15 - BARRACKS
16 - BICYCLE SHED
17 - GUARDS HOUSE
18 - ENGINE PARTS & ASSEMBLY

41227-4

LEGEND

1-4. SUBASSEMBLY
5. FUSELAGE ASSEMBLY
6. FINAL ASSEMBLY
7. PROBABLE FINAL ASSEMBLY
8. HOSPITAL
9. ADMINISTRATION BUILDING
10. REST ROOMS
11. OFFICES
12. SEAPLANE RAMP
13. TRADE SCHOOL
14. BICYCLE SHEDS
15. PROBABLE DORMITORIES
16. OFFICE OF MITSUBISHI CO.
17. COOKHOUSE
18. MITSUBISHI SHOPS & HANGARS
19. AICHI SHOPS & HANGARS



AICHI EITOKU AIRCRAFT ASSEMBLY PLANT

NAGOYA AREA

LAT. 35° 05' N., LONG. 136° 51' E.

APPROX. SCALE IN FEET

10000 0 10000 20000

TARGET No. 1729

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UNCONTROLLED MOSAIC OF

NAGOYA AREA, JAPA

APPROX. SCALE IN FEET

2000 0 2000 4000 6000 8000

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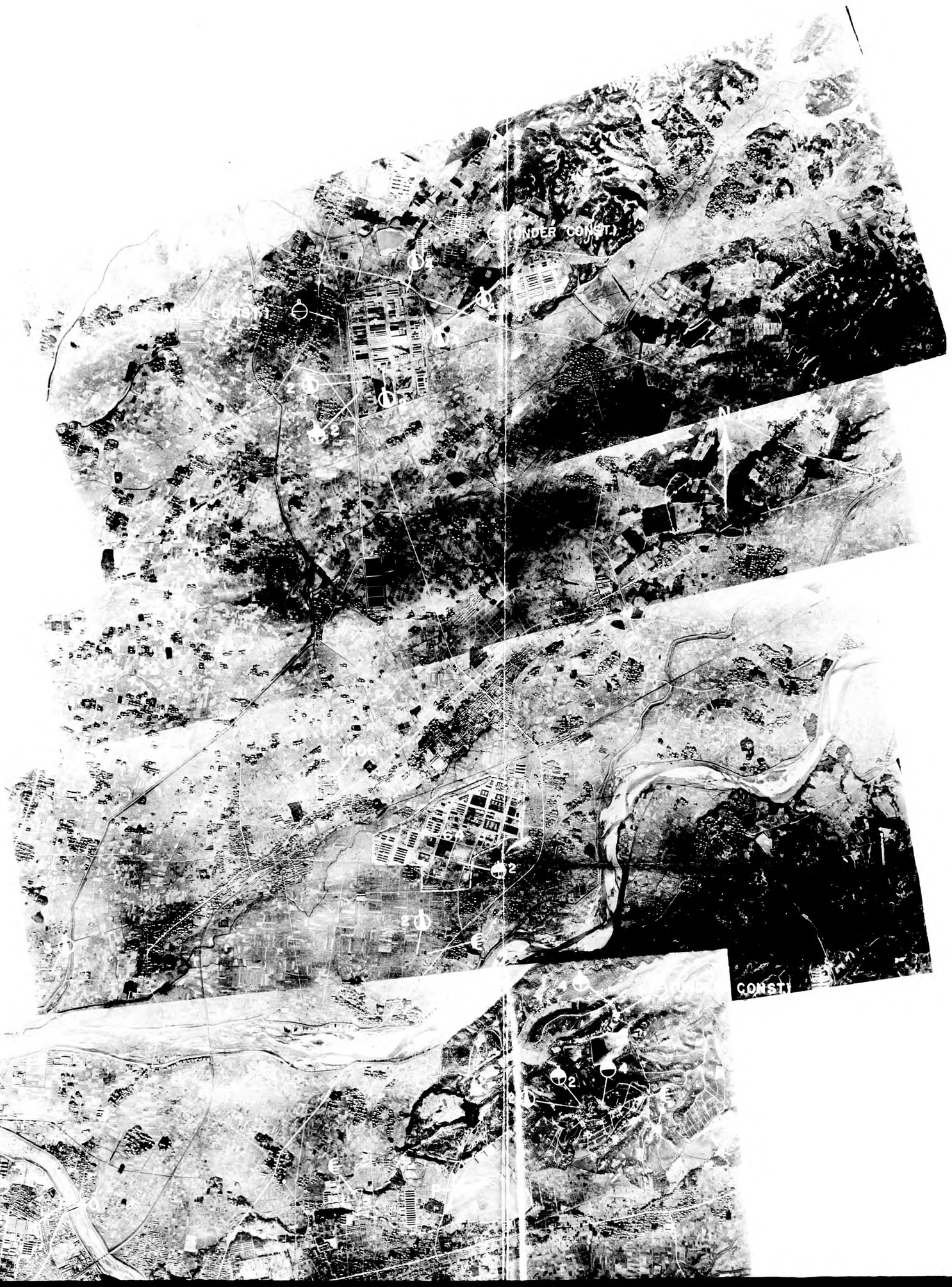
SHEET 1 OF 2



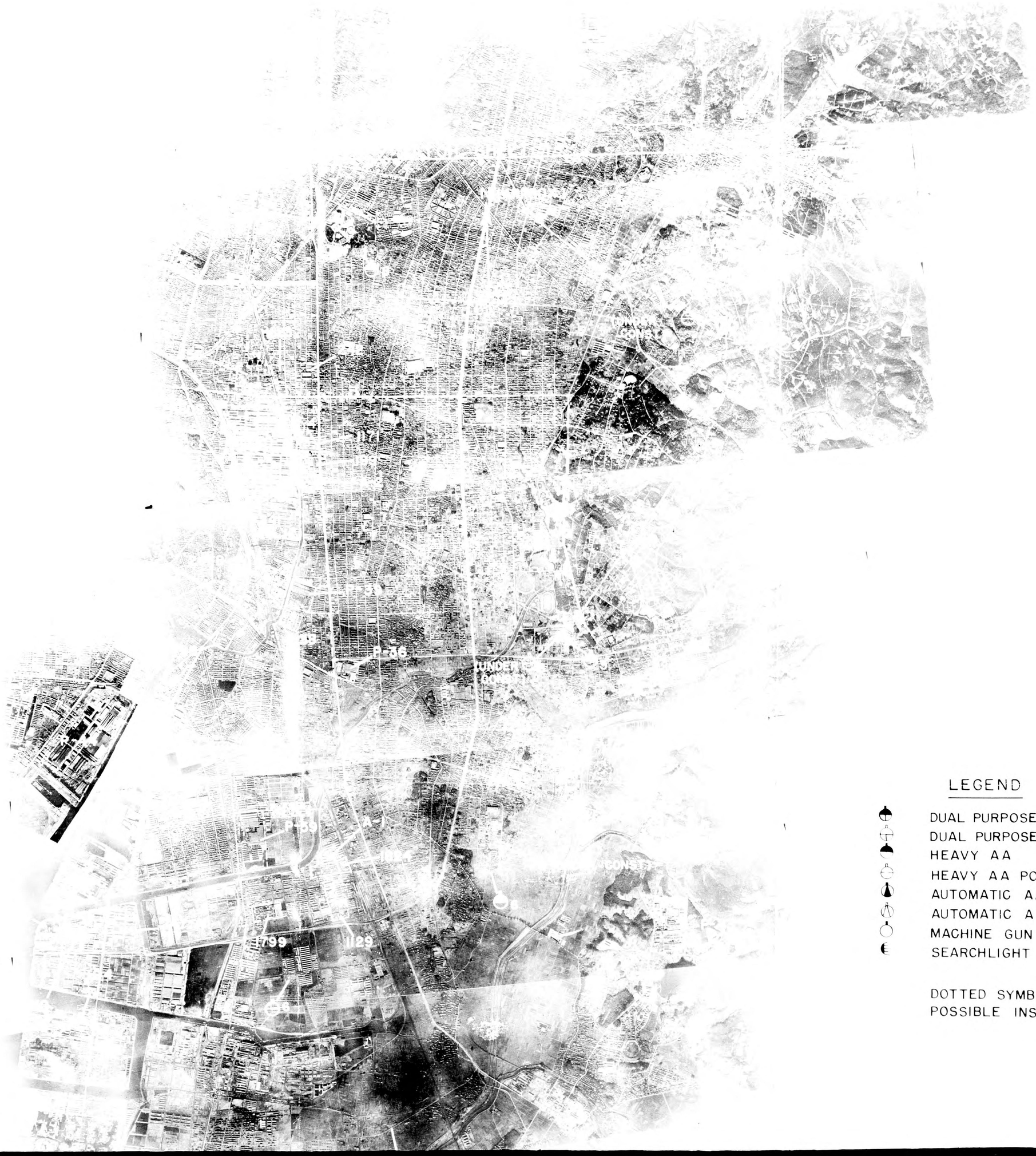
LEGEND

- DUAL PURPOSE GUN
- DUAL PURPOSE GUN POSITION (EMPTY)
- HEAVY AA
- HEAVY AA POSITION (EMPTY)
- AUTOMATIC AA
- AUTOMATIC AA POSITION (EMPTY)
- MACHINE GUN
- SEARCHLIGHT

DOTTED SYMBOLS INDICATE
POSSIBLE INSTALLATIONS

SEARCHLIGHT

DOTTED SYMBOLS INDICATE
POSSIBLE INSTALLATIONS



LEGEND

- DUAL PURPOSE GUN
- DUAL PURPOSE GUN POSITION (EMPTY)
- HEAVY AA
- HEAVY AA POSITION (EMPTY)
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- AUTOMATIC AA POSITION (EMPTY)
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DOTTED SYMBOLS INDICATE
POSSIBLE INSTALLATIONS

LEGEND

- DUAL PURPOSE GUN
- DUAL PURPOSE GUN POSITION (EMPTY)
- HEAVY AA
- HEAVY AA POSITION (EMPTY)
- AUTOMATIC AA
- AUTOMATIC AA POSITION (EMPTY)
- MACHINE GUN
- SEARCHLIGHT

DOTTED SYMBOLS INDICATE POSSIBLE INSTALLATIONS

UNCONTROLLED MOSAIC OF

NAGOYA AREA, JAPAN

APPROX. SCALE IN FEET

2000 0 2000 4000 6000 8000 10000

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SHEET 2 OF 2

UNITED STATES PACIFIC FLEET
AND PACIFIC OCEAN AREAS
HEADQUARTERS OF THE COMMANDER IN CHIEF

SCG/as

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4 January 1945 Serial DIS-041330.

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Buildings

The majority of the buildings are modern steel frame, sawtooth roof construction. The roofs are covered with a slate-asbestos composition roofing, and are camouflaged with disruptive painting. The floors are concrete, and the sides are largely glass.

Buildings in the instrument area cover about 58,000 square feet.
Buildings in the ordnance area cover about 460,000 square feet.
Buildings in the A/C parts and assembly area cover about 625,000 square feet.
Buildings in the engine area cover about 500,000 square feet.
Total 1, 643,000 square feet.

This total represents approximately 65% of the total area of the plant. A large area just east of the A/C parts and assembly section is available for future expansion. At present this area, together with a small cleared strip south of the A/C parts and assembly section, and a body of water south of the engine plant, serves as an effective firebreak. The power station (Building No. 6) is a transformer station and receives electric power from the NAGOYA city power system.

Communications

The plant has water frontage on the HORI River and is surrounded by first-class city streets and highways.

AICHI A/C Works, EITOKU PLANT, Target No. 1729

The AICHI A/C Works, EITOKU Plant (35° 05' N., 136° 51' E) is located on the west side of NAGOYA Harbor (Target No. 251) and the east bank of the SHONAI River. It is about three-quarters of a mile north of the former NAGOYA Municipal Airport (see below). Information concerning the plant was obtained from a POW who worked there from April 1942 to April 1943. Current photographic coverage of the plant is at a scale of approximately 1/65,000.

The plant covers an area of about 6,000,000 square feet. POW reports that it is used exclusively for A/C assembly. Planes when leaving the plant are fully equipped with armament, instruments, etc., and are ready for final tests. Land planes are hauled to the airport south of the plant while seaplanes are handled by the ramp (No. 12 on the attached photograph) west of Building No. 6.

POW stated that during the period of his employment the plant produced KATE, JUDY, and ALF. He himself worked on KATE and reported that in April 1942 about 45 KATEs per month were being produced. He estimated that by April 1943 this number had been increased to 60.

POW reports that all large buildings except No. 7 have concrete floors, slate-asbestos composition roofs, and glass sides mounted upon a two-foot high wooden base. Building No. 7 has a flat sheet iron roof.

AICHI-MITSUBISHI Airfield (NAGOYA Airfield)

The following information was obtained from a POW who was a member of a detachment of 10 men from the 135th Inf Regt detailed to guard the field during February/March 1944. Current photo coverage of the field is inadequate.

The former NAGOYA Municipal Airport, located about three-quarters of a mile south of the AICHI EITOKU Plant, is now used by the AICHI and MITSUBISHI A/C Companies. Planes from both companies are brought to the field by truck or by barge. Smaller planes are brought in intact but larger models, such as BETTY, come with wings detached. MITSUBISHI has shops on the field where the final assembly is carried out.

All planes were Navy and included ZEKE, JUDY, VAL, BETTY, and DINAH (possibly the Navy version; POW insisted that only Navy planes used the field). About 25 took off daily for SUZUKA and NAGOYA East (IBOGAHARA) Airfields.

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A-1..TAKANO Precision Co.; reportedly manufacturing MGs, small arms, ammo.
A-2..Small automobile repair shops

SKETCH MAP OF

AICHI AIRCRAFT WORKS, ATSUTA PLANT, NAGOYA CITY

LAT. 35°07'N., LONG. 136°54'E.

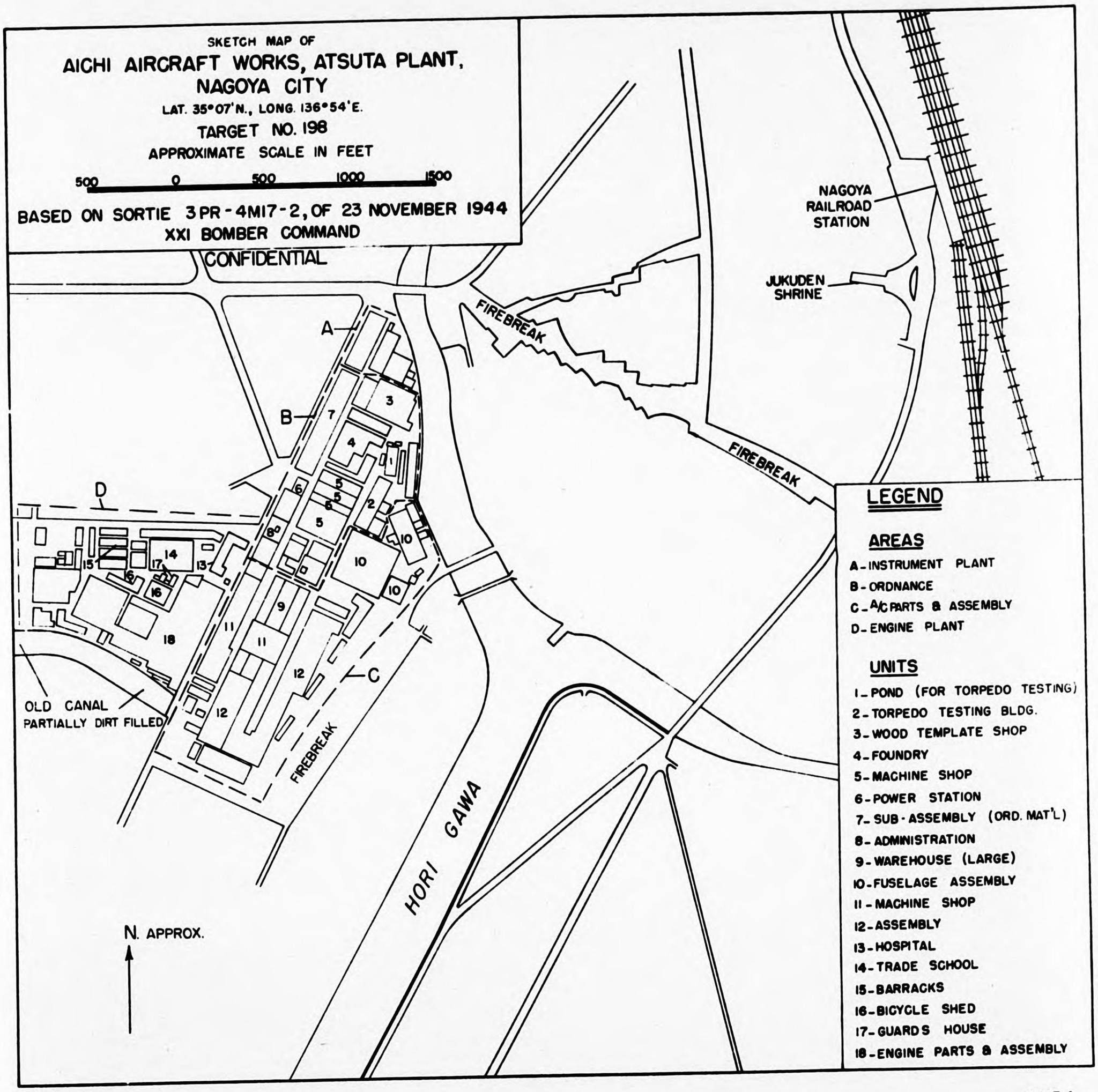
TARGET NO. 198

APPROXIMATE SCALE IN FEET

500 0 500 1000 1500

BASED ON SORTIE 3PR-4MI7-2, OF 23 NOVEMBER 1944
XXI BOMBER COMMAND

CONFIDENTIAL



41227-4

LEGEND

1-4. SUBASSEMBLY
5. FUSELAGE ASSEMBLY
6. FINAL ASSEMBLY
7. PROBABLE FINAL ASSEMBLY
8. HOSPITAL
9. ADMINISTRATION BUILDING
10. REST ROOMS
11. OFFICES
12. SEAPLANE RAMP
13. TRADE SCHOOL
14. BICYCLE SHEDS
15. PROBABLE DORMITORIES
16. OFFICE OF MITSUBISHI CO.
17. COOKHOUSE
18. MITSUBISHI SHOPS & HANGARS
19. AICHI SHOPS & HANGARS

AICHI EITOKU AIRCRAFT ASSEMBLY PLANT

NAGOYA AREA

LAT. 35° 05' N., LONG. 136° 51' E.

APPROX. SCALE IN FEET

10000 0 10000 20000

TARGET No. 1729

CONFIDENTIAL

UNCONTROLLED MOSAIC OF

NAGOYA AREA, JAPAN

APPROX. SCALE IN FEET

2000 0 2000 4000 6000 8000 10000

CONFIDENTIAL

SHEET 1 OF 2

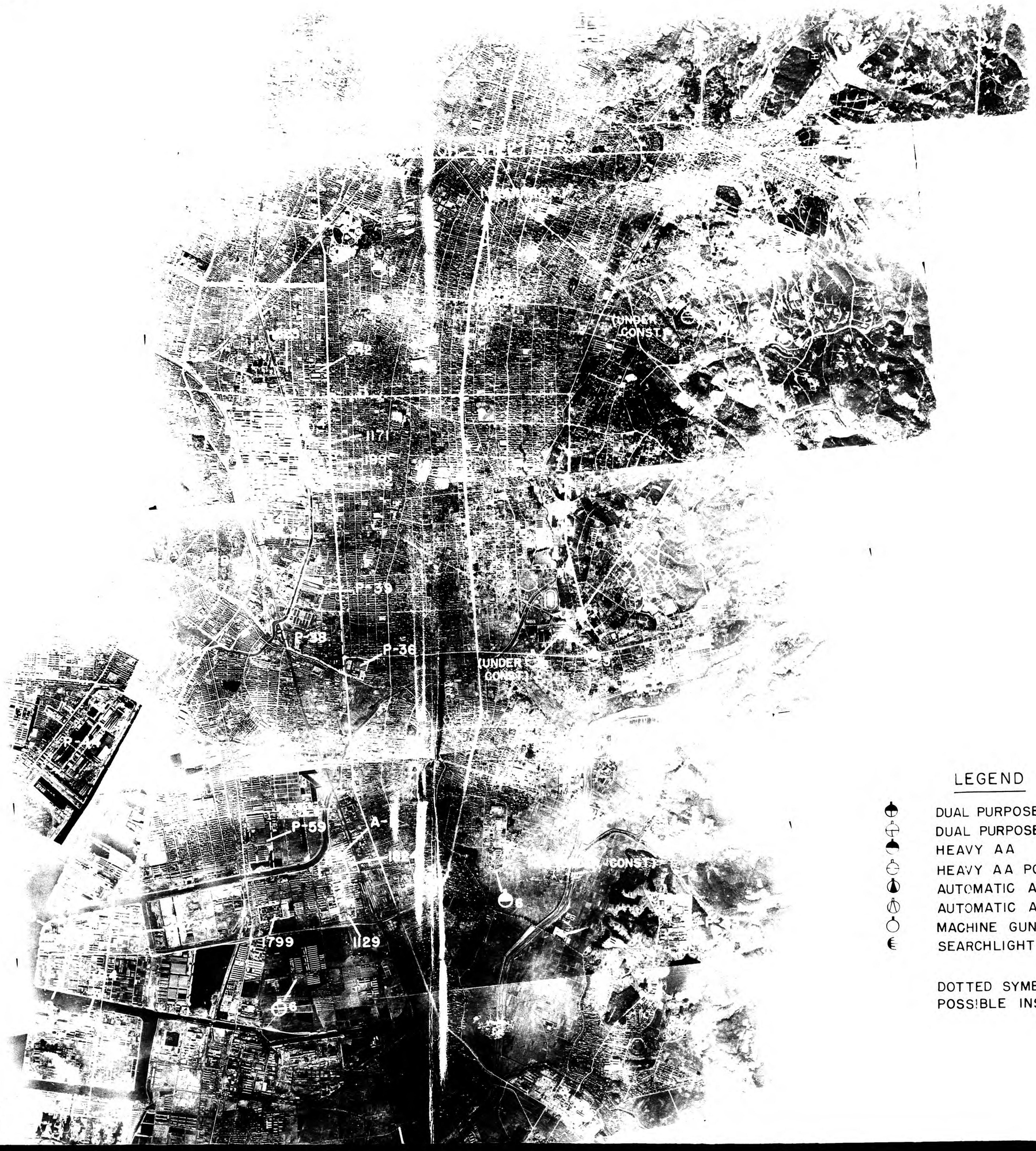
LEGEND

- DUAL PURPOSE GUN
- DUAL PURPOSE GUN POSITION (EMPTY)
- HEAVY AA
- HEAVY AA POSITION (EMPTY)
- AUTOMATIC AA
- AUTOMATIC AA POSITION (EMPTY)
- MACHINE GUN
- SEARCHLIGHT

DOTTED SYMBOLS INDICATE
POSSIBLE INSTALLATIONS

DOTTED SYMBOLS INDICATE
POSSIBLE INSTALLATIONS

By HR-M NARA, Date 2/13/91



LEGEND

- DUAL PURPOSE GUN
- DUAL PURPOSE GUN POSITION (EMPTY)
- HEAVY AA
- HEAVY AA POSITION (EMPTY)
- AUTOMATIC AA
- AUTOMATIC AA POSITION (EMPTY)
- MACHINE GUN
- SEARCHLIGHT

DOTTED SYMBOLS INDICATE
POSSIBLE INSTALLATIONS

LEGEND

- DUAL PURPOSE GUN
- DUAL PURPOSE GUN POSITION (EMPTY)
- HEAVY AA
- HEAVY AA POSITION (EMPTY)
- AUTOMATIC AA
- AUTOMATIC AA POSITION (EMPTY)
- MACHINE GUN
- SEARCHLIGHT

DOTTED SYMBOLS INDICATE POSSIBLE INSTALLATIONS

UNCONTROLLED MOSAIC OF

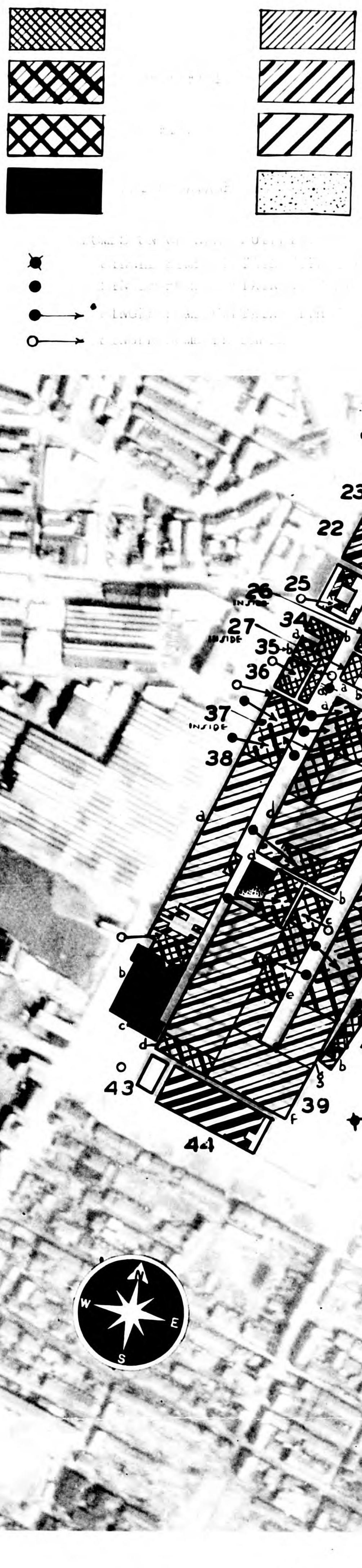
NAGOYA AREA, JAPAN

APPROX. SCALE IN FEET

2000 0 2000 4000 6000 8000 10000

CONFIDENTIAL

SHEET 2 OF 2



AC/AS INTELLIGENCE PHOTOGRAPH [illegible]
PHOTO INTELLIGENCE SECTION

AICHI AIRCRAFT PLANT

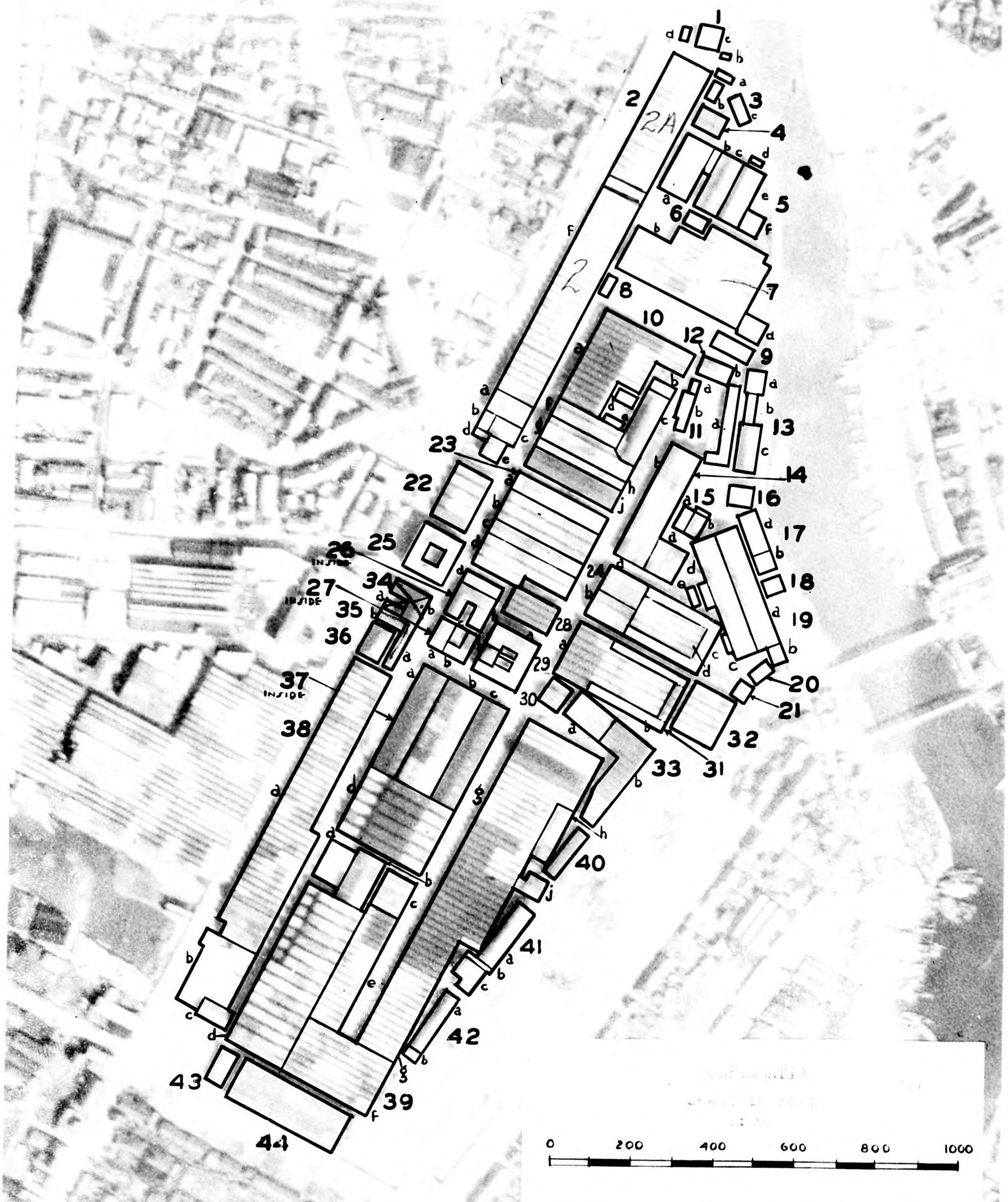
(Aichi Tokei Denki)

NAGOYA, JAPAN

TARGET #	
90:20 - 1/2	9 JUNE 1945

750.183

INSIDE
N
W
E
S
0
200
400
600
800
1000
AC/AS
9 JUNE 1945
750.183

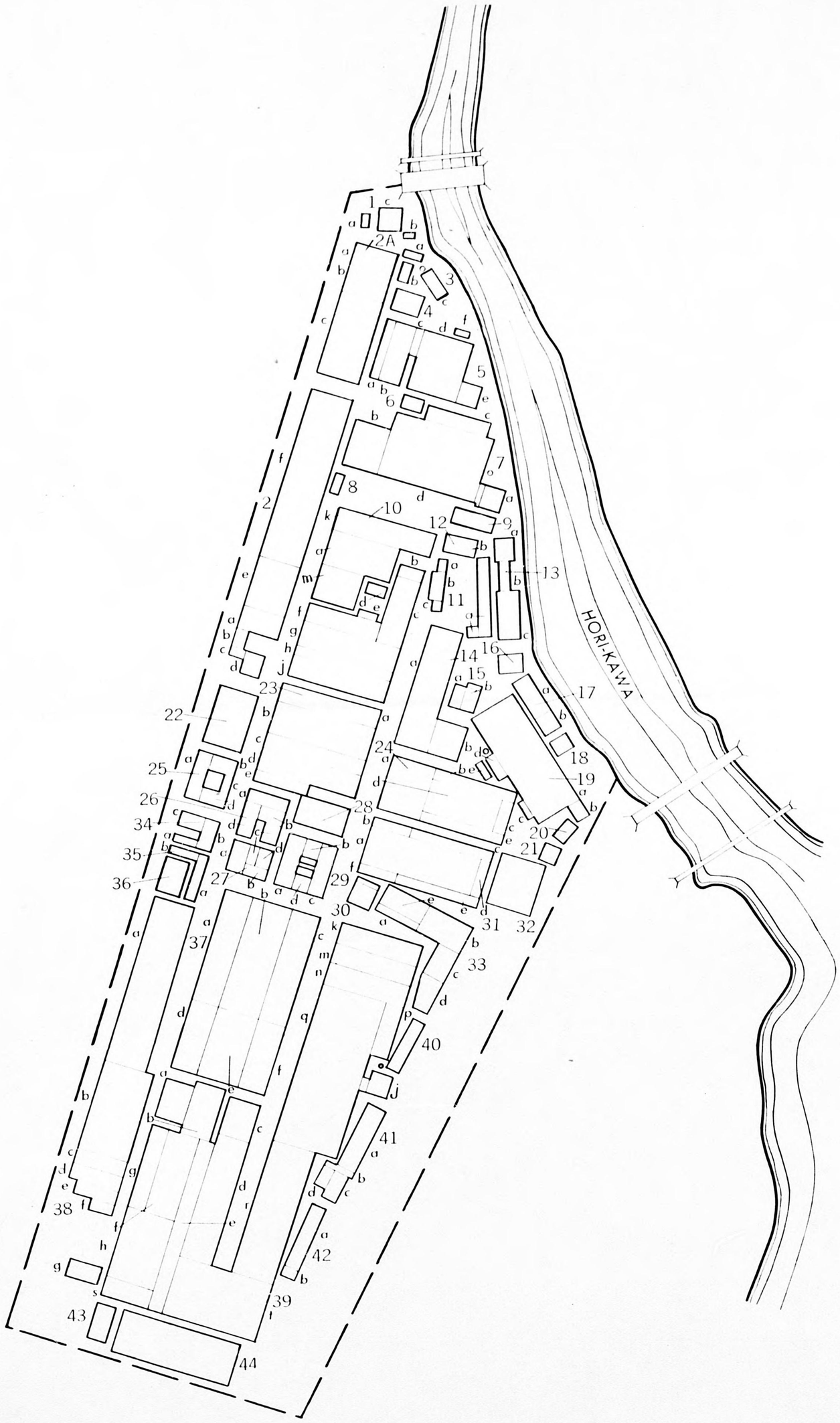


AC/AS INTELLIGENCE [illegible] DIVISION
PHOTO INTERPRETATION PLAN

[illegible] PLANT
(Aircraft Engine)
[illegible], JAPAN

TARGET NO.	RAID DATE
90:20 - D/8	

CONFIDENTIAL



CONFIDENTIAL

SCALE IN FEET

1:3600

0 200 400 600 800 1000

AC/AS INTELLIGENCE PHOTOGRAPHIC DIVISION
PHOTO INTELLIGENCE SECTION

AICHI ORDNANCE PLANT
NAGOYA, JAPAN

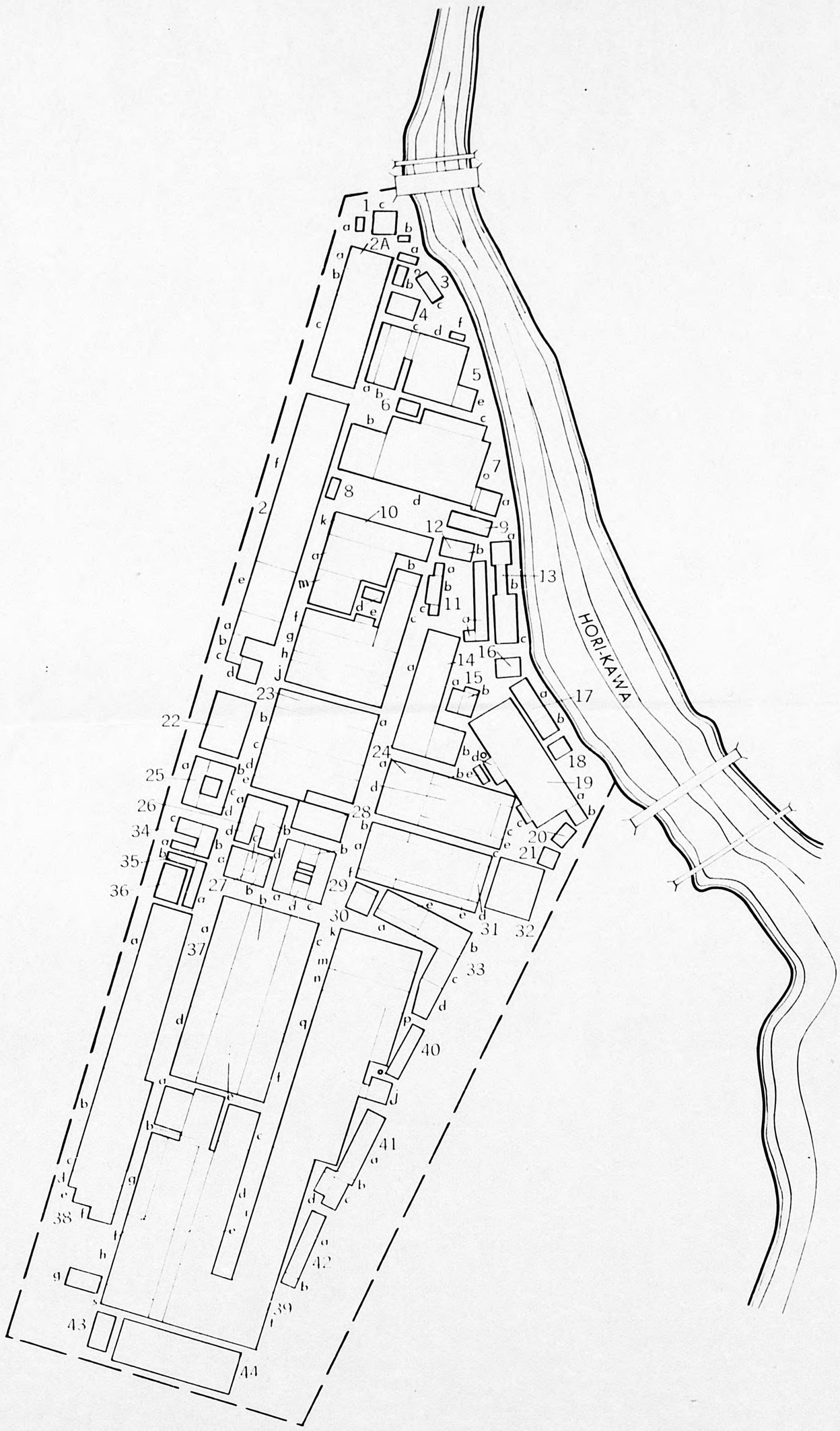
TARGET NO.
90:20/198

N

PHOTOGRAPHY OF
12 MAR 1945

C.F.L. 744.072

CONFIDENTIAL



CONFIDENTIAL

SCALE IN FEET

1:3600

0 200 400 600 800 1000

AC/AS INTELLIGENCE PHOTOGRAPHIC DIVISION
PHOTO INTELLIGENCE SECTION

AICHI ORDNANCE PLANT
NAGOYA, JAPAN

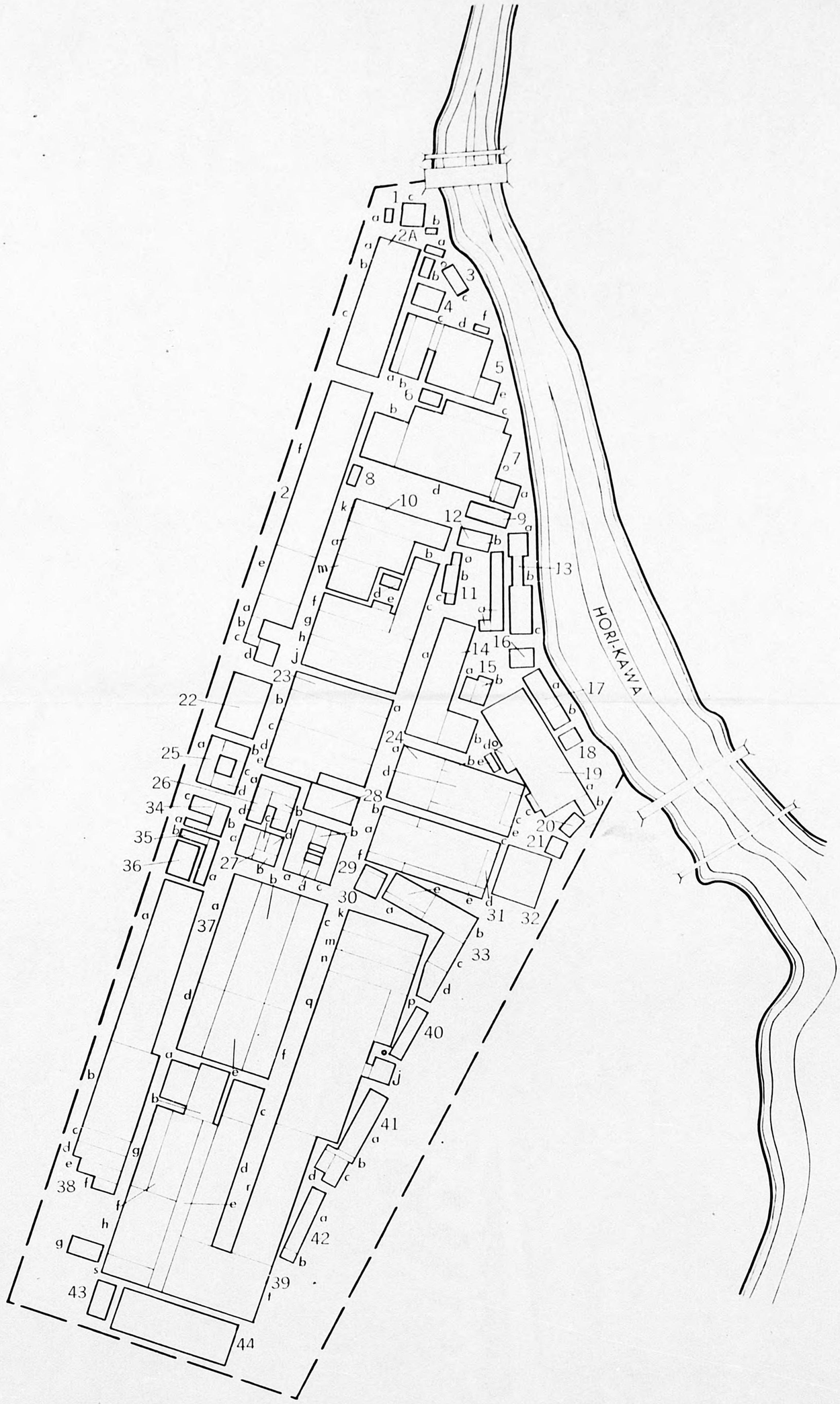
TARGET NO.
90:20/198

N

PHOTOGRAPHY OF
12 MAR 1945

C.F.L. 744.072

CONFIDENTIAL



CONFIDENTIAL

SCALE IN FEET

1:3600

0 200 400 600 800 1000

AC/AS INTELLIGENCE PHOTOGRAPHIC DIVISION
PHOTO INTELLIGENCE SECTION

AICHI ORDNANCE PLANT
NAGOYA, JAPAN

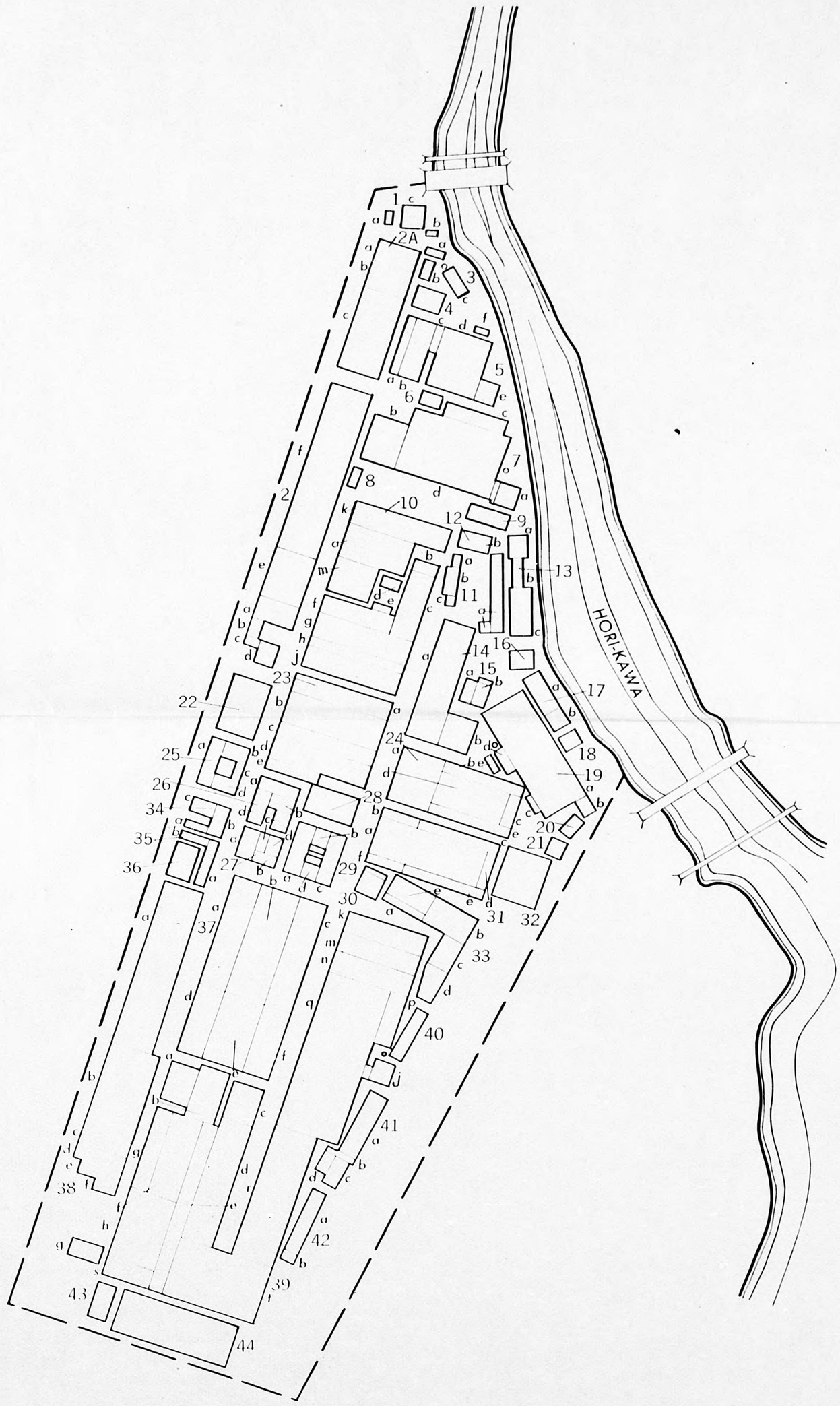
TARGET NO.
90:20/198

N

PHOTOGRAPHY OF
12 MAR 1945

C.F.L. 744.072

CONFIDENTIAL



CONFIDENTIAL

SCALE IN FEET

1:3600

0 200 400 600 800 1000

AC/AS INTELLIGENCE PHOTOGRAPHIC DIVISION
PHOTO INTELLIGENCE SECTION

AICHI ORDNANCE PLANT
NAGOYA, JAPAN

TARGET NO.
90:20/198

N

PHOTOGRAPHY OF
12 MAR 1945

C.F.L. 744.072

AF IPH-3

COVER USED	
MISSION	3PR/5M277
PRINTS	4R:136,137,138
DATE	9 June 1945
QUALITY	Good
SCALE	1:9300 (Approx)
DATE OF ATTACK	9 June 1945

AC/AS INTELLIGENCE
PHOTOGRAPHIC DIVISION
PHOTO-INTELLIGENCE SECTION

LIMITED DAMAGE INTERPRETATION

NO. 59

CONFIDENTIAL D/P

DATE 20 July 1945

INTERPRETER V.Smith 1st Lt

SHEET NO. / OF

AREA NO. 90:20 / TARGET NO. 198

TARGET: AICHI ORDNANCE DEPOT

LOCATION: NAGOYA, JAPAN

This Limited Damage Interpretation has been undertaken in accordance with the conditions as checked below:

- ☐ *Photography is inadequate in scale*
- ☐ *Photography is indequate in quality*
- ☐ *Stereo coverage is lacking or incomplete*
- ☐ *Detailed interpretation is not required*
- ☐ *Damage is below 10% of built-up area*
- ☐ *Total damage is less than 50,000 sq. ft.*
- ☐ *Excessive time between attack and photography*
- ☐ *Other factors as noted below*

BUILDING REF. NO.		AREA	VISIBLE DAMAGE STRUCT'L	VISIBLE DAMAGE SUPERF'L	DESCRIPTION OF DAMAGE
					NOTE: The damage,noted below and on the annotated print, was obviously caused by H.E. However, most of the plant site seemed to have been "swept through" by fire. *Total Built Up Area - 1,299,900 sq ft of which 74,800 sq ft was damaged prior to 17 May cover. % of Built Up Area .06
1	a	0.6	0.6		Demolished
	b	0.4	0.4		"
	c	3.3	3.3		"
2	A	36.2	24.2 7.0*		
2	a	5.2	5.2		" possible direct hit
	b	0.9	0.9		"
	c		3.2*		Structural damage. Prior to 17 May cover
	d	0.8	0.8*		" " " " " " "
	e	2.7	2.7*		" " " " " " "
	f	61.9	37.0	19.4	Direct hit on the center of "f" has destroyed at least ¼ of building and its internal contents
3	a	1.0	1.0		Destroyed. Crumbling remains strewn about.
	b	1.0	1.0		" " " " "
					⅕ of small building east of "b" - destroyed (Not on plan)
	c	2.8	1.0		Eastern section of building destroyed
4		4.1			Building apparently intact
5	a	10.8		5.8*	Roof partially stripped on raid prior to 14 May45
	b	1.7		1.7	Roof stripped
	c	9.3	3.0	2.5	Eastern section of roof has several main members destroyed
	d	0.6	.6		Destroyed

TOTALS		
SITE	SITE AREA	
	BUILT-UP AREA	1,299,900
	% OF SITE BUILT-UP	
DAMAGE	AREA OF DAMAGE	1,109,400
	% OF BUILT-UP AREA	85%

APPROVED BY:

LEE W. KILGORE
Major, Air Corps
Chief, Evaluation Branch
Photographic Division
Office of AC/AS, Intelligence

ALL AREAS ARE PLAN AREAS IN THOUSANDS OF SQUARE FEET

5-6122, AF

AFIPH-3A

AREA NO.	TARGET NO.	LIMITED DAMAGE INTERPRETATION NO. 59	CONFIDENTIAL	D/P
90:20	198		SHEET NO. 1 OF 4	

5	e	9.3	1.1	8.2	Roof partially stripped by blast. Main girder on W side of wall severed
	f	3.0		3.0	Building stripped. Building N of "f" destroyed. (Not on plan)
6		1.7	1.7*		Demolished on raid prior to 17 May cover
7	a	3.0	3.0		Destroyed - bent walls still standing
	b	10.8	10.8*		(Northern 5 bays superficially damaged on raid
	c	47.0	9.0*	38.0	(prior to 17 May cover. W section of building (demolished on raid prior to 17 May. Remainder (of building stripped. Girder on SE wall, (severed.
8		1.0	1.0		Demolished
9		4.5	4.5		2/3 demolished. Distorted remains of bent framework still standing.
10	a	50.2	50.2		2 direct hits and 1 near miss has demolished 1/6 of the building. Remaining stripped framework bent and distorted-sagging. Internal contents, probably, entirely destroyed.
	b	1.9		1.9	Framework stripped
	c	10.7	1.3	9.4	Frame on S section broken and bent - building completely stripped
	d	1.6	1.6		Demolished
	e	0.3	0.3		"
	f	8.2		8.2	Frame stripped by blast
	g	12.0		12.0	" " " "
	h	7.2		7.2	" " " "
	j	14.4		14.4	" " " "
11	a	0.6	0.6		Severely damaged
	b	3.2	1.0	2.2	Roof stripped, but for S end which is destroyed
12	a	6.3	6.3		Demolished, but for S end which has been severely damaged
	b	4.0	1.5	2.4	Framework stripped, but for W side - chipped off
13	a	3.0	3.0*		Demolished or removed prior to 17 May cover
	b	2.0			Apparently intact.
	c	6.0	6.0*		Demolished or removed prior to 17 May cover
14	a	6.4	6.4		Demolished by near miss
	b	29.8	20.3	9.5	Building completely stripped by blast. N 1/3 is sagging through the middle - walls out of line. S 1/3 has S wall destroyed - girders and trusses bent and severed. Internal contents severely damaged and destroyed at the indicated N and S ends.
15	a	1.2	1.2		Demolished by near miss
	b	1.9	1.9		" " " "
16		3.6		1.0	Center of roof, at the peak, stripped
17	a	5.2		5.2	Stripped
	b	2.0			Apparently intact
18		2.0			" "
19	a	17.8		17.8	Roof stripped by blast
	b	1.5		1.5	" " " "
	c	17.8		17.8	" " " "
	d	2.1		2.1	Roof stripped
	e	1.0		1.0	" "
	f	1.6		1.6	" "
20		1.8	.7	1.1	Roof stripped - S half of building leveled to ground
21		1.7	1.7		Destroyed. Crumbling remains strewn about
22		12.6		12.6	Roof stripped by blast. E wall of the 2nd bay from the bottom, blown off

AF IPH-3A

AREA NO.	TARGET NO.	LIMITED DAMAGE INTERPRETATION NO. 59	CONFIDENTIAL	D/P
90:20	198		SHEET NO. 3 OF 4	

23	a	10.8	6.4	4.4	(Glancing direct hit on the N edge has destroyed
	b	21.6	14.1	7.5	(center section of the bay. Blast, going South-
					(ward, has caved-in roof of 3 more bays of "b".
					(E framework of "a" and "b" appears intact.
	c	8.4	6.4	2.0	Possible direct hit in the center of the bay. Small section of the frame on the E end appears intact.
	d	18.1	18.1		Direct hit on center section, 1/3 of 3 bays demolished. Remaining framework bent and out of line.
					NOTE: at least 60% of the internal contents destroyed
24	a	6.8	1.7	5.1	Roof stripped. Framework of W wall, bent & cut
	b	6.8	4.0	2.8	Same as "a". S wall bent - trusses seemingly gone
	c	9.6		9.6	Roofing disturbed and stripped
	d	14.4	4.1	10.3	Roof stripped. SW end of bottom 2 bays have main girders "out of line"
25		12.6	4.8	7.8	SW section of building has stripped roof. NW corner of the inner court - chipped off - SW corner of building chipped. Sagging noted on W and N sections - evidently caused by internal fire or blast caused by probable bomb penetration.
26	a	3.1	3.1		Demolished
	b	8.3	8.3		"
27	a	2.8	2.8		"
	b	3.0	.4		N end sagging and chipped
	c	0.8	.8		Demolished
28		9.2	9.2		Destroyed by possible direct hit and fire?
29		13.4	3.0	2.2	Roof and several stories blown off by blast caused by direct hit on #28. W and S sections of building have roof damage caused by near miss.
30		2.5			No visible damage
31	a	33.0	24.0	9.0	(W 1/3 of building destroyed. Crumbling debris
					(strewn about. E end destroyed by direct hit.
	b	10.4	6.0	4.4	(SW end of "b" sagging. NE end of "b" has E
					(wall framework sagging and bent. About 85%
					(of internal contents destroyed.
32		12.6	4.3	8.3	Building framework stripped. SW end has the framewok bent and cut.
33	a	16.7	5.7	11.0	Building stripped by H.E. and fire. SW end has outer and S wall destroyed. NE corner bent and has the main girder cut.
	b	10.0	6.3	2.7	SW corner of N section destroyed. Center section of bays going S destroyed. End bay on S end has the main girder on 2 ends cut.
34	a	2.4	2.4		Demolished
	b	8.5	8.5		"
35	a	3.4	3.4		"
	b	2.1	2.1		"
36		6.5	6.5		"
37	a	21.0	21.0		2 direct hits on the N end has demolished most of the building
	b	25.2	12.4	12.8	Framework warped, severed and partially destroyed
	c	21.0	11.5	9.5	N end has framework partially destroyed - center section sagging - S end has outer girder warped? At least 80% of the internal contents destroyed by H.E. and fire.
	d	43.2	8.0	35.2	S center section blasted by direct hit. Third bay, up from the S on E side of building, has main girder, on the outer edge, cut. Entire building stripped.

AFIPH-3A

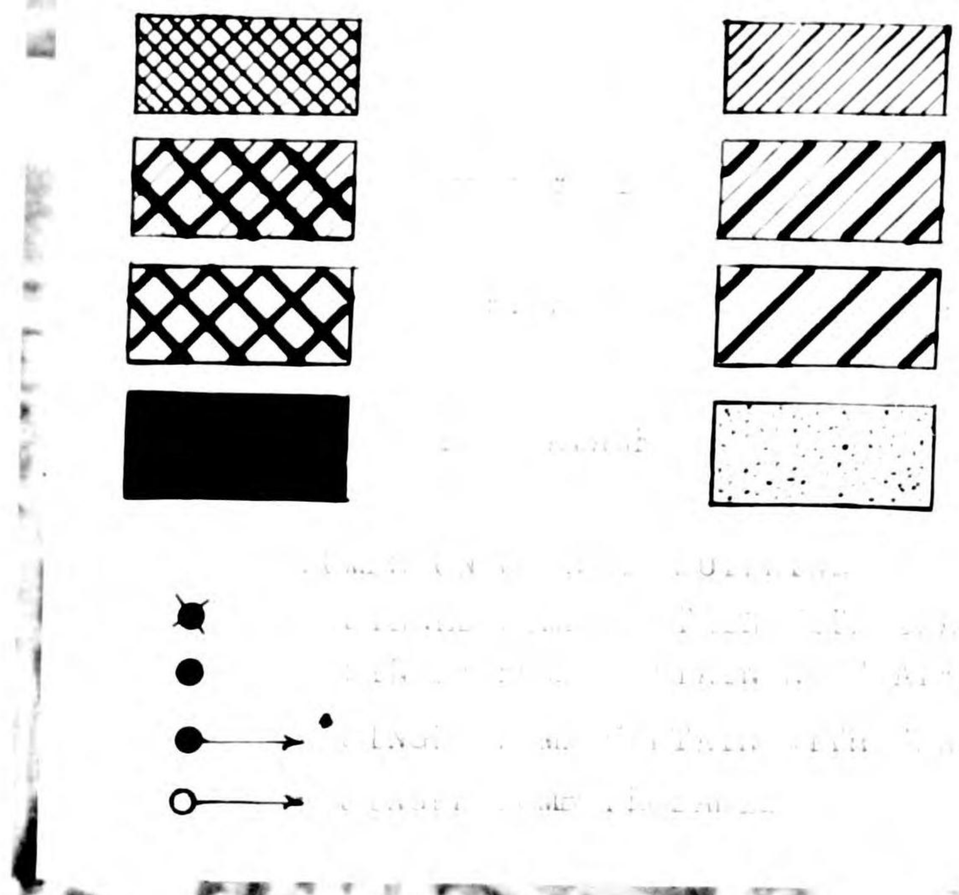
AREA NO.	TARGET NO.	LIMITED DAMAGE INTERPRETATION NO. 59	CONFIDENTIAL	D/P
90:20	198		SHEET NO. OF	

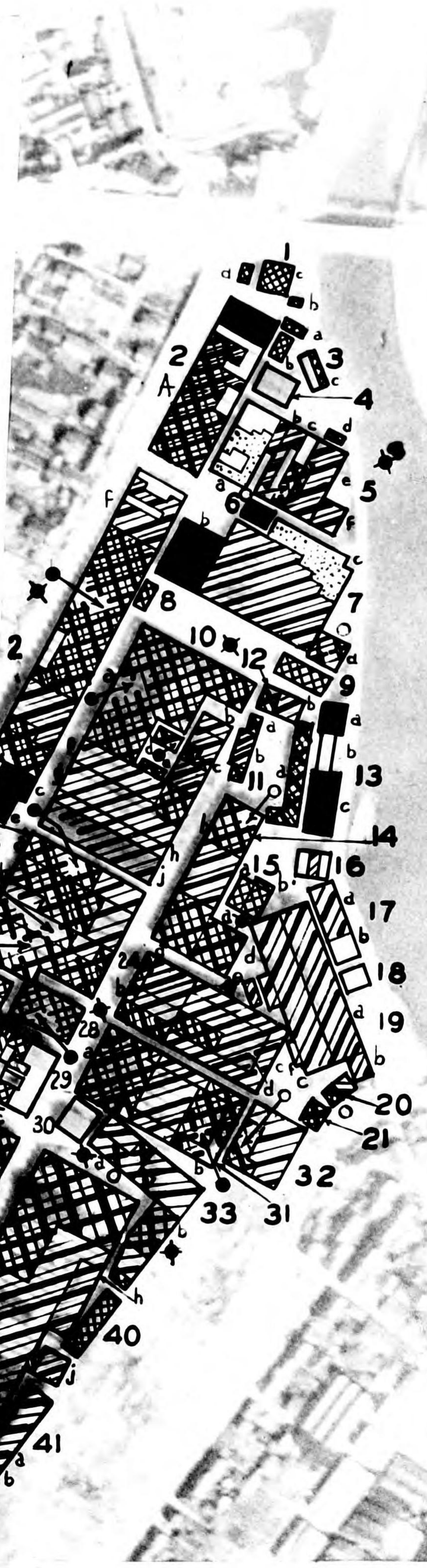
38	a	82.5	26.2	50.5	3 direct hits and one probable, on the N end, has demolished this area. E edge of projecting center section, has main girder severed and bent. S end of "a" severely damaged.
	b	22.0	22.0*		Structural damage prior to 17 May cover
	c	2.8	2.8*		" " " " " " "
39	a	6.3	6.3*		Demolished on some raid prior to 17 May 45
	b	10.8	10.8		Destroyed by direct hit
	c	7.2	7.2		Demolished by direct hit
	d	72.0	8.6	63.4	Entire building stripped except for small section on the E side - main girder cut - same on the S end. Framework bent and main girders knocked off supporting columns.
	e	25.6	16.6	9.0	Direct hit has demolished 2/3 of the framework
	f	34.8		34.8	Roofing stripped
	g	134.3	69.3	65.0	N end has west wall framework destroyed. Main girders warped and sagging throughout. Direct hit on S end has destroyed this section of the building. Entire building stripped of roofing.
	h	6.7		6.7	Cover hazy - framework intact - roofing stripped
	j	3.0	0.5	2.5	" " " " " " W section destroyed. At least 70% of the internal contents destroyed by H.E. and fire.
40		4.6	4.6		Demolished
41	a	6.1		6.1	Roofing damaged by H.E. and fire
	b	1.2	1.2		Destroyed
	c	3.4	3.4		Walls sagging
42	a	6.1	6.1		(Roofing stripped, framework bent - main ridge
	b	0.4		0.4	(beam destroyed
43		4.5			No apparent damage visible
44		33.5		31.5	Roofing stripped by fire

Totals 418.4 616.2 = 1,034,600 sq ft of damage

% of Built Up Area 79%

5-6122a, AF

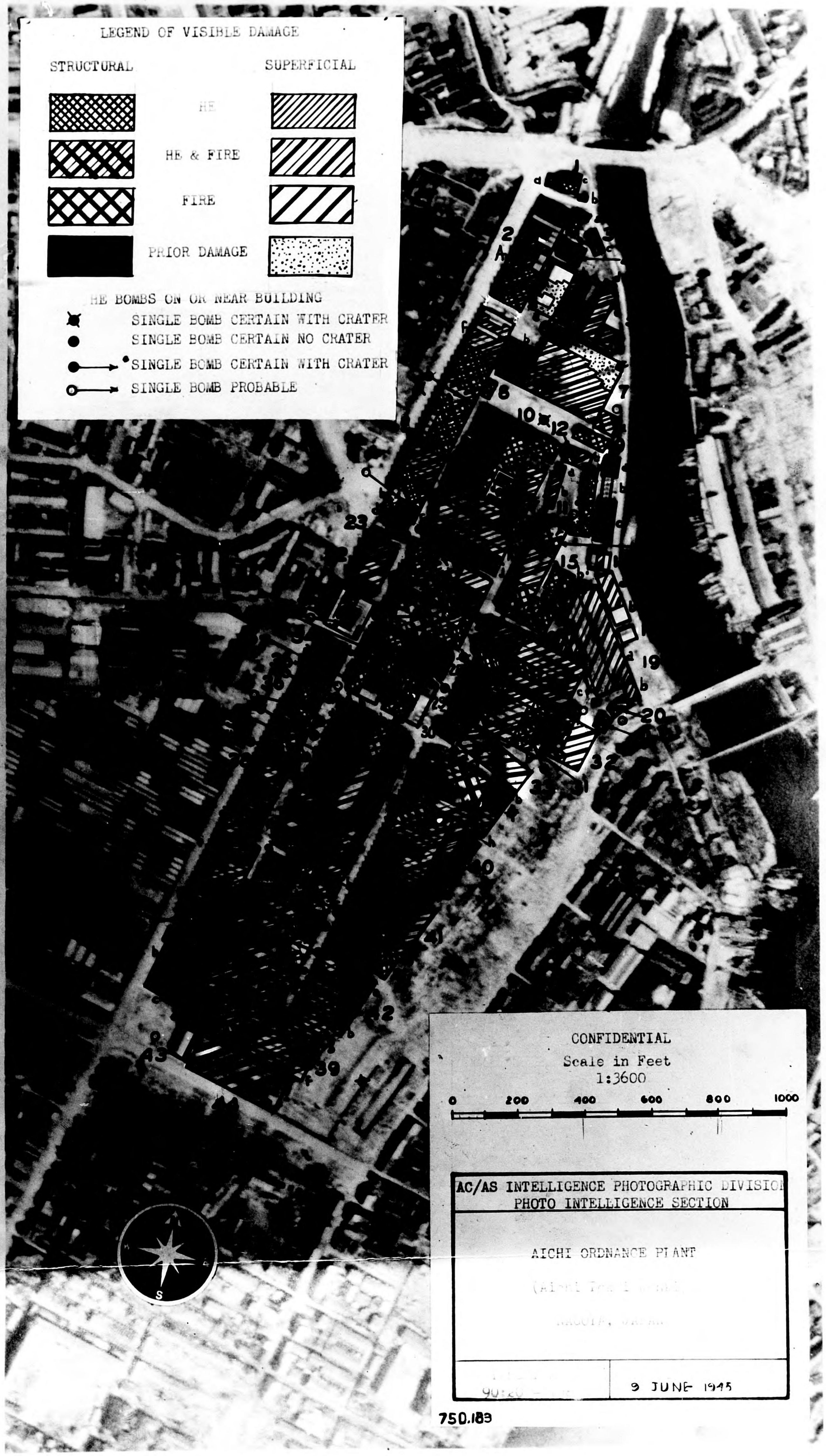




AC/AS INTELLIGENCE [illegible]
PHOTO INTERPRETATION [illegible]

3 JUNE 1945

750.183


LEGEND OF VISIBLE DAMAGE
STRUCTURAL
SUPERFICIAL
HE
HE & FIRE
FIRE
PRIOR DAMAGE
HE BOMBS ON OR NEAR BUILDING
SINGLE BOMB CERTAIN WITH CRATER
SINGLE BOMB CERTAIN NO CRATER
SINGLE BOMB CERTAIN WITH CRATER
SINGLE BOMB PROBABLE
CONFIDENTIAL
Scale in Feet
1:3600
0
200
400
600
800
1000
AC/AS INTELLIGENCE PHOTOGRAPHIC DIVISION
PHOTO INTELLIGENCE SECTION
AICHI ORDNANCE PLANT
9 JUNE 1945
750.183

136

3PR
137
1R-6
F-Z 0-31000

XXI C 4K 6-9 F-40-31000 REST
138

AF IPH-3

COVER USED	
MISSION	3PR/5M277
PRINTS	4R:136,137,138
DATE	9 June 1945
QUALITY	Good
SCALE	1:9300 (Approx)
DATE OF ATTACK	9 June 1945

AC/AS INTELLIGENCE
PHOTOGRAPHIC DIVISION
PHOTO-INTELLIGENCE SECTION

LIMITED DAMAGE INTERPRETATION

NO. 59

CONFIDENTIAL D/P

DATE 20 July 1945

INTERPRETER V.Smith 1st Lt

SHEET NO. / OF

AREA NO. 90:20 / TARGET NO. 198

TARGET: AICHI ORDNANCE DEPOT

LOCATION: NAGOYA, JAPAN

This Limited Damage Interpretation has been undertaken in accordance with the conditions as checked below:

- ☐ *Photography is inadequate in scale*
- ☐ *Photography is indequate in quality*
- ☐ *Stereo coverage is lacking or incomplete*
- ☐ *Detailed interpretation is not required*
- ☐ *Damage is below 10% of built-up area*
- ☐ *Total damage is less than 50,000 sq. ft.*
- ☐ *Excessive time between attack and photography*
- ☐ *Other factors as noted below*

BUILDING REF. NO.		BUILDING AREA	VISIBLE DAMAGE STRUCT'L	VISIBLE DAMAGE SUPERF'L	DESCRIPTION OF DAMAGE
					NOTE: The damage,noted below and on the annotated print, was obviously caused by H.E. However, most of the plant site seemed to have been "swept through" by fire.
					*Total Built Up Area - 1,299,900 sq ft of which 74,800 sq ft was damaged prior to 17 May cover.
					% of Built Up Area .06
1	a	0.6	0.6		Demolished
	b	0.4	0.4		"
	c	3.3	3.3		"
2	A	36.2	24.2		
			7.0*		
2	a	5.2	5.2		
	b	0.9	0.9		" possible direct hit
	c		3.2*		"
	d	0.8	0.8*		Structural damage. Prior to 17 May cover
	e	2.7	2.7*		" " " " " " "
	f	61.9	37.0	19.4	" " " " " " "
					Direct hit on the center of "f" has destroyed at least ¼ of building and its internal contents
3	a	1.0	1.0		Destroyed. Crumbling remains stream about.
	b	1.0	1.0		" " " " "
					½ of small building east of "b" - destroyed (not on plan)
	c	2.8	1.0		Eastern section of building destroyed
4		4.1			Building a area.tly intact
5	a	10.8		5.8*	Roof partially stripped on w ic prior to 17 May 45
	b	1.7		1.7	Roof stripped
	c	9.3	3.0	2.5	Eastern section of roof has several main members destroyed
	d	0.6	.6		Destroyed

TOTALS		
SITE	SITE AREA	
	BUILT-UP AREA	1,299,900
	% OF SITE BUILT-UP	
DAMAGE	AREA OF DAMAGE	1,1 9,400
	% OF BUILT-UP AREA	85%

APPROVED BY:

LEE W. KILGORE
Major, Air Corps
Chief, Evaluation Branch
Photographic Division
Office of AC/AS, Intelligence

ALL AREAS ARE PLAN AREAS IN THOUSANDS OF SQUARE FEET

5-6122, AF

AFIPH-3A

AREA NO.	TARGET NO.	LIMITED DAMAGE INTERPRETATION NO. 59	CONFIDENTIAL	D/P
90:20	198		SHEET NO. 2 OF 4	

5	e	9.3	1.1	8.2	Roof partially stripped by blast. Main girder on W side of wall severed
	f	3.0		3.0	Building stripped. Building N of "f" destroyed. (Not on plan)
6		1.7	1.7*		Demolished on raid prior to 17 May cover
7	a	3.0	3.0		Destroyed - bent walls still standing
	b	10.6	10.2*		(Northern 5 bays superficially damaged on raid
	c	47.0	9.0*	38.0	(prior to 17 May cover. W section of building
					(demolished on raid prior to 17 May. Remainder
					(of building stripped. Girder on SE wall,
					(severed.
8		1.0	1.0		Demolished
9		4.5	4.5		2/3 demolished. Distorted remains of bent framework still standing.
10	a	50.2	50.2		2 direct hits and 1 near miss has demolished 1/6 of the building. Remaining stripped framework bent and distorted-sagging. Internal contents, probably, entirely destroyed.
	b	1.9		1.9	Framework stripped
	c	10.7	1.3	9.4	Frame on S section broken and bent - building completely stripped
	d	1.6	1.6		Demolished
	e	0.3	0.3		"
	f	8.2		8.2	Frame stripped by blast
	g	12.0		12.0	" " " "
	h	7.2		7.2	" " " "
	j	14.4		14.4	" " " "
11	a	0.6	0.6		Severely damaged
	b	3.2	1.0	2.2	Roof stripped, but for S end which is destroyed
12	a	6.3	6.3		Demolished, but for S end which has been severely damaged
	b	4.0	1.5	2.4	Framework stripped, but for W side - chipped off
13	a	3.0	3.0*		Demolished or removed prior to 17 May cover
	b	2.0			Apparently intact.
	c	6.0	6.0*		Demolished or removed prior to 17 May cover
14	a	6.4	6.4		Demolished by near miss
	b	29.8	20.3	9.5	Building completely stripped by blast. N 1/3 is sagging through the middle - walls out of line. S 1/3 has S wall destroyed - girders and trusses bent and severed. Internal contents severely damaged and destroyed at the indicated N and S ends.
15	a	1.2	1.2		Demolished by near miss
	b	1.9	1.9		" " " "
16		3.6		1.0	Center of roof, at the peak, stripped
17	a	5.2		5.2	Stripped
	b	2.0			Apparently intact
18		2.0			" "
19	a	17.8		17.8	Roof stripped by blast
	b	1.5		1.5	" " " "
	c	17.8		17.8	" " " "
	d	2.1		2.1	Roof stripped
	e	1.0		1.0	" "
	f	1.6		1.6	" "
20		1.8	.7	1.1	Roof stripped - S half of building leveled to ground
21		1.7	1.7		Destroyed. Crumbling remains strewn about
22		12.6		12.6	Roof stripped by blast. E wall of the 2nd bay from the bottom, blown off

AF IPH-3A

AREA NO.	TARGET NO.	LIMITED DAMAGE INTERPRETATION NO. 59	CONFIDENTIAL	D/P
90:20 /	198		SHEET NO: 3 OF 4	

23	a	10.8	6.4	4.4	(Glancing direct hit on the N edge has destroyed
	b	21.6	14.1	7.5	(center section of the bay. Blast, going South-
					(ward, has caved-in roof of 3 more bays of "b".
					(E framework of "a" and "b" appears intact.
	c	8.4	6.4	2.0	Possible direct hit in the center of the bay. Small section of the frame on the E end appears intact.
	d	18.1	18.1		Direct hit on center section, 1/3 of 3 bays demolished. Remaining framework bent and out of line. NOTE: at least 60% of the internal contents destroyed
24	a	6.8	1.7	5.1	Roof stripped. Framework of W wall, bent & cut
	b	6.8	4.0	2.8	Same as "a". S wall bent - trusses seemingly gone
	c	9.6		9.6	Roofing disturbed and stripped
	d	14.4	4.1	10.3	Roof stripped. SW end of bottom 2 bays have main girders "out of line"
25		12.6	4.8	7.8	SW section of building has stripped roof. NW corner of the inner court - chipped off - SW corner of building chipped. Sagging noted on W and N sections - evidently caused by internal fire or blast caused by probable bomb penetration.
26	a	3.1	3.1		Demolished
	b	8.3	8.3		"
27	a	2.8	2.8		"
	b	3.0	.4		N end sagging and chipped
	c	0.8	.8		Demolished
28		9.2	9.2		Destroyed by possible direct hit and fire?
29		13.4	3.0	2.2	Roof and several stories blown off by blast caused by direct hit on #28. W and S sections of building have roof damage caused by near miss.
30		2.5			No visible damage
31	a	33.0	24.0	9.0	(W 1/3 of building destroyed. Crumbling debris
					(strewn about. E end destroyed by direct hit.
	b	10.4	6.0	4.4	(SW end of "b" sagging. NE end of "b" has E
					(wall framework sagging and bent. About 85%
					(of internal contents destroyed.
32		12.6	4.3	8.3	Building framework stripped. SW end has the framewok bent and cut.
33	a	16.7	5.7	11.0	Building stripped by H.E. and fire. SW end has outer and S wall destroyed. NE corner bent and has the main girder cut.
	b	10.0	6.3	2.7	SW corner of N section destroyed. Center section of bays going S destroyed. End bay on S end has the main girder on 2 ends cut.
34	a	2.4	2.4		Demolished
	b	8.5	8.5		"
35	a	3.4	3.4		"
	b	2.1	2.1		"
36		6.5	6.5		"
37	a	21.0	21.0		2 direct hits on the N end has demolished most of the building
	b	25.2	12.4	12.8	Framework warped, severed and partially destroyed
	c	21.0	11.5	9.5	N end has framework partially destroyed - center section sagging - S end has outer girder warped? At least 80% of the internal contents destroyed by H.E. and fire.
	d	43.2	8.0	35.2	S center section blasted by direct hit. Third bay, up from the S on E side of building, has main girder, on the outer edge, cut. Entire building stripped.

5-6122a, AF

AF/PH-3A

AREA NO.	TARGET NO.	LIMITED DAMAGE INTERPRETATION NO. 59	CONFIDENTIAL	D/P
90:20	198		SHEET NO. OF	

38	a	82.5	26.2	50.5	3 direct hits and one probable, on the N end, has demolished this area. E edge of projecting center section, has main girder severed and bent. S end of "a" severely damaged.
	b	22.0	22.0*		Structural damage prior to 17 May cover
	c	2.8	2.8*		" " " " " " "
39	a	6.3	6.3*		Demolished on some raid prior to 17 May 45
	b	10.8	10.8		Destroyed by direct hit
	c	7.2	7.2		Demolished by direct hit
	d	72.0	8.6	63.4	Entire building stripped except for small section on the E side - main girder cut - same on the S end. Framework bent and main girders knocked off supporting columns.
	e	25.6	16.6	9.0	Direct hit has demolished 2/3 of the framework
	f	34.8		34.8	Roofing stripped
	g	134.3	69.3	65.0	N end has west wall framework destroyed. Main girders warped and sagging throughout. Direct hit on S end has destroyed this section of the building. Entire building stripped of roofing.
	h	6.7		6.7	Cover hazy - framework intact - roofing stripped
	j	3.0	0.5	2.5	" " " " " " W section destroyed. At least 70% of the internal contents destroyed by H.E. and fire.
40		4.6	4.6		Demolished
41	a	6.1		6.1	Roofing damaged by H.E. and fire
	b	1.2	1.2		Destroyed
	c	3.4	3.4		Walls sagging
42	a	6.1	6.1		(Roofing stripped, framework bent - main ridge
	b	0.4		0.4	(beam destroyed
43		4.5			No apparent damage visible
44		33.5		31.5	Roofing stripped by fire

Totals 418.4 616.2 = 1,034,600 sq ft of damage

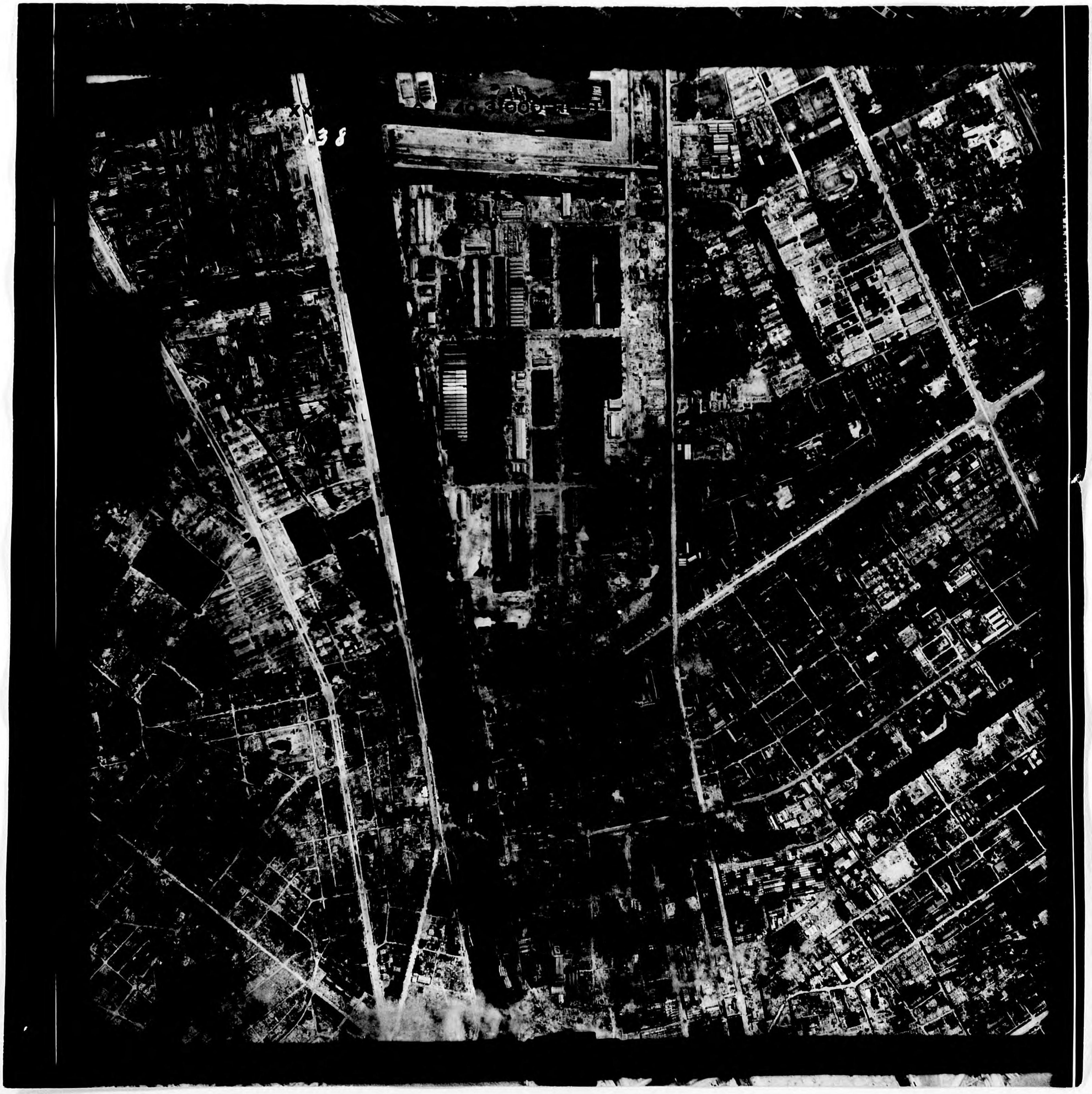
% of Built Up Area 79%

5-6122a, AF

F-40 31000 REST
136

3P
1277 XX1
F.40 31000 REST
136

3PR 5M2
4R 6
F-40-31000 REST



TO 20-178

90.20.1729 - Aichi A/c works - Eastern Plant

A-75, B-, C(-)60, D 88, E-, F(-)80, F/A 76
A-89, B-, C(-)78, D 93, E-, F(-)92, F/A 82

A- $\frac{69}{81}$ JTG = 55

$\frac{49}{71}$ Civ = 69

= 154 = (77)

F/A = $\frac{6631}{81}$ 81.8

$\frac{4910}{71}$ 69.1

150.9 - (75)

C

Bldg Area		2266.0			
Total	A	1180.3	256.5	78.2	—
	R	923.8			
Struct	A	508.0	18.3	96.4	(82%)
	R	526.3			
Superf	A	672.3	194.8	939	
	R.	497.5			

D. $\frac{2195.4}{2266.0}$ 96.8

$\frac{1834.7}{2266.0}$ 80.9

177.7 - ~~88.8~~ (89)

F 98.7
99.2
92.3

(97)

A- $\frac{30}{31}$. 96.7

$\frac{23}{31}$: 74.1

= 170.8 = (85%)

D = $\frac{1764.5}{1767.5}$ = 99.8

$\frac{1595.5}{1767.5}$ = 90.2

190.0 : (95)

90.20 - 17.29 - Continued # 2

Primary Bldgs

F/A = 2778/31 = 89.6
2345/31 = 75.6
165.2 82.6 = (83)

"C" Total Bldg Area 1767.5

Total	A	830.5		75.6	
	R	628.1	202.4		
Struc	A	184.0		85.6	(78% OK)
	R	157.6	26.4		
Superf	A	646.5		72.7	
	R	470.5	176.0		

F = 88.5/98.5/90.0 = (92% OK)

D/A TABLE
TARGET NO. 90,20-1729 #3

NAME OF TARGET AICHI A/C, EITOKU

3RD LEVEL REPORT

BUILDING NO.		BLDG. AREA	STRUCTURAL (1000s SQ. FT.)			SUPERFICIAL (1000s SQ. FT.)			(1000s SQ. FT.)			REMOVED (1000s SQ. FT.)			REMARKS
~~A/T/S~~	C. I. U.	(ACTUAL)	A	R-CIU	R	A	R	R	A	R	R	A	R	R	
1	57	12.9	12.9	14.4											TORN DOWN
2	56	12.9	12.9	14.4											"
3	—	6.0	6.0	6.0											"
4	55	20.9	20.9	23.2											FIRE RAID
5	50B	7.5	7.5	17.4											"
6	50A	22.5	22.5												"
7	54B	5.6	5.6	5.1											"
8	54A	7.0	7.0	7.6											FIRE RAID
9	49B	12.0	12.0	12.6											"
10	49A	12.0	12.0	9.6											"
11	53	16.5				16.5	13.6								
12	48	18.0	19.0	19.2											FIRE RAID
13	47	11.9	11.9												"
14	52	10.2	10.2	7.7			3.0								*
15	51	10.3	10.3				~~3.7~~								*
16	46	15.3	2.3			13.0	16.7								
17	44	6.1	6.1	6.5											
18	43	17.5	17.5	18.0											
19	42	25.2	25.2	24.5											FIRE RAID
20	45	19.8	5.0			14.8	21.1								"
21	41	34.1	34.1	28.0											
22	40	160.0	64.8	47.1		95.2	84.5								
23	39	208.0	8.3	9.5		191.4	46.6								
24	38	19.4													FIRE RAID
25A	33	9.7				21.1	6.9								ROOF DISTURBANCE
25B	23	11.4													ROOF MUST BE REPLACED
26	35	13.5	2.4	~~15.2~~											
27	34	~~7.9~~	7.9	15.2											
28	22	13.5										3.4			PROB. DAMAGE
29	—	—													
30	—	9.3	9.3	4.0											
31	—	9.3	9.3	4.0											
32	—	9.3	9.3	12.0											
33	31B	93.4				13.4	14.4								*4.0 COUNTED TWICE
34	21A	13.4		7.7											
35	36	94.1	2.7			25.8	28.6					7.0			
36A	30	118.0										~~25.8~~			VAP FIRE; NOT BOMB DAMAGE

#3

D/A TABLE
TARGET NO. 90.20-1729 NAME OF TARGET AICHI A/C, EITOKU

3RD LEVEL REPORT

BUILDING NO.		BLDG. AREA	STRUCTURAL (1000s SQ. FT.)			SUPERFICIAL (1000s SQ. FT.)			(1000s SQ. FT.)			REMOVED (1000s SQ. FT.)			REMARKS
~~AYNG~~	C.I.U.	(ACTUAL)	A	R	R	A	R	R	A	R	R	A	R	R	
36B	30	—													
32	27	68.6	4.3			64.3	69.5								
38	29	86.5													
39	28	198.0				48.5	39.6								EAST AND SOUTH WALLS STRIPPED
40	—	1.8													
41	27	22.2	1.2			12.4	5.9								
42	26	40.9													PROB. EARTHQUAKE DAMAGE 6.2 STRUCTURAL, 4.6 S
43	—	3.6													
44	25	—													
45	14	8.3		1.5											ROOF DISTURBANCE ONLY
46	16	—	—	37.6											DESTROYED BUT NO
47	15	—	—	9.0											PLAN CHECK
48	17	5.6													
49	18	10.8				EXTENT UNKNOWN									
50	19	75.6													WALL DAMAGE
51	20	86.5													
52	22D	6.9	~~6.9~~												
53	22C	6.9	6.9	8.0											
54	22B	6.9	6.9	8.0											
55	22A	6.9		7.0								6.9?			FIRE RAID
56	21	38.7													
57	23	130.0													
58	24	—	—	37.0											FIRE RAID
59	—	—	5.2	5.0											X 5.0 COUNTED TWICE
60	13	7.8	7.8	12.0											X 12.0 " "
61	12	5.8													
62	—	6.9													
63	—	6.9													
64	11	—	11.3	9.0											
65	10	63.2													
66	9A	12.0													ROOF DISTURBANCE UNDER REPAIR
67	8	14.6													ROOF DISTURBANCE
68	7E	7.4													
69	7D	6.7													
70	7C	18.3													
71	7B	18.3													
72	7A	18.3											6.4		

#3

D/A TABLE
TARGET NO. 90.20-1729 NAME OF TARGET AICHI A/C, EITOKU

3RD LEVEL REPORT

BUILDING NO.		BLDG. AREA	STRUCTURAL (1000s SQ. FT.)			SUPERFICIAL (1000s SQ. FT.)			(1000s SQ. FT.)			REMOVED (1000s SQ. FT.)			REMARKS
~~VDI~~ ACPS	C.I.U.	(ACTUAL)	A	R	R	A	R	R	A	R	R	A	R	R	
73	—	2.9													
74	6B	—	—	4.6											
75	6A	—	—												FIRE
76	5	215.0	64.8	66.2		150.2	133.8								"
77	4	81.1				5.2	9.6								BAD FIRE
78	3	12.0	12.0	4.5											FIRE
79	2A-2D	—	—	2.1											"
80	1A-1F	21.6	21.6	16.3											ROOF DISTURBANCE
															FIRE
		~~2410.0~~	~~515.9~~	~~451.2~~			~~354.1~~								
	TOTALS	2410.0	515.9	451.2		1123.5	497.5								
			54.												

F/A TABLE #1

TARGET NO. 90.20-1729 | PAGE 1

3RD LEVEL REPORT

BUILDING NO. UTG/~~AG/AS~~	BUILDING NO. C.I.U.	PRIMARY	FUNCTION REPORTED ~~AG/AS~~ UTG	FUNCTION REPORTED C. I. U.	FUNCTION ACTUAL	EVALUATION ~~UTG/AG/AS~~ CORRECT	~~UTG/AG/AS~~ SIMILAR	~~UTG/AG/AS~~ UNIDENT.	~~UTG/AG/AS~~ WRONG	C.I.U CORRECT	C.I.U SIMILAR	C.I.U UNIDENT.	C.I.U WRONG	POINT SCORE ~~UTG/AG/AS~~	POINT SCORE C.I.U.	REMARKS
1	57	X	RECEIVING, STORAGE, SMALL PARTS MFG.	MOLD FORMING	MINOR SHOPS, STORAGE, OFFICES	X				X				85	100	
2	56	X	"	"	"	X				X				85	100	
3	—	X	"	—	"	X				X				85	85	
4	55		"	PATTERN SHOP	"	X				X				85	85	
5	50B		"	STORAGE	"	X				X				85	85	
6	50A		"	PIPE STORAGE	"	X				X				85	85	
7	54B		"	STORAGE	"	X				X				85	85	
8	54A		"	"	"	X				X				85	85	
9	49B		"	—	"	X				X				85	85	
10	49A		"	—	"	X				X				85	85	
11	53	X	"	DIE FOUNDRY	"	X				X				85	100	
12	48		"	WAREHOUSE	"	X				X				85	100	
13	47		"	STORAGE	"	X					X			85	70	
14	52		"	—	"	X						X		85	45	
15	51		"	—	"	X						X		85	45	
16	46	X	"	—	"	X						X		85	45	
17	44		"	RESEARCH	"	X				X				85	85	
18	43		"	ENGINEERING	"	X				X				85	85	
19	42		"	PLANNING	"	X				X				85	85	
20	45	X	"	—	"	X						X		85	45	
21	41		"	—	"	X						X		85	45	
22	40	X	SUB-ASSEMBLY	SUB-ASSEMBLY	SPAR PRODUCTION	X				X				85	85	
23	39	X	MAJOR AND FINAL ASSEMBLY	EXCAVATION	ASSEMBLY (UNDER CONST.)	X				X				85	85	
24	38		PROD. STORAGE	WAREHOUSE	(NO CHECK)	—	—	—	—	—	—	—	—	—	—	
25A	33	X	STORAGE	—	SHOP		X					X		70	45	
25B	32	X	"	—	"		X					X		70	45	
26	35		SMALL SHOP	MESS HALL	"	X							X	85	0	
27	24		STORAGE	—	STORAGE	X						X		85	45	
28	22		UNIDENTIFIED	WAREHOUSE	SHOP		X				X			45	70	
29	—		PROD. STORAGE	—	STORAGE	X				—	—	—	—	80	—	
30	—		"	—	"	X				—	—	—	—	80	—	
31	—		"	—	"	X				—	—	—	—	80	—	
32	—		STORAGE	—	"	X				—	—	—	—	85	—	
33	31B		RECEIVING AND PROD. HEAT TREATMENT	HEAT TREATMENT	RECEIVING AND STORAGE	X							X	83	0	
34	31A		RECEIVING OFFICE	STORAGE	RECEIVING OFFICE	X					X			100	70	
35	26	X	METAL SHAPING, CUTTING AND SMALL PARTS MFG.	SUB-ASSEMBLY	SHEET METAL SHOP	X					X			100	70	
36A	30	X	"	"	MACHINE PARTS MFG.	X					X			85	70	

F/A TABLE #1

TARGET NO. 90.20-1729 | PAGE 2

3RD LEVEL REPORT

BUILDING NO. UTG A/C/AS	BUILDING NO. C.I.U.	PRIMARY	FUNCTION REPORTED A/C/AS UTG	FUNCTION REPORTED C.I.U.	FUNCTION ACTUAL	EVALUATION UTG A/C/AS CORRECT	SIMILAR	UNIDENT.	WRONG	EVALUATION C.I.U. CORRECT	SIMILAR	UNIDENT.	WRONG	POINT SCORE UTG A/C/AS	POINT SCORE C.I.U.	REMARKS
368	30	x	DROP HAMMER AND PRESS SHOP	SUB-ASSEMBLY	MACHINE PARTS MFG.		x				x			85	85	
37	37	x	SUB-ASSEMBLY	———	SUB-ASSEMBLY	x						x		100	45	
38	29	x	"	SUB-ASSEMBLY	"	x				x				100	100	
39	28	x	MAJOR AND FINAL ASSEMBLY	FINAL-ASSEMBLY	MAJOR AND FINAL ASSEMBLY	x				x				100	100	
40	—		UNIDENTIFIED	———	SEAPLANE OPERATIONS			x						45	—	
41	27		POST-ASSEMBLY	PAINT SHOP	POST-ASSEMBLY HANGER	x							x	100	0	
42	26		~~UNIDENTIFIED~~ POST-ASSEMBLY	PAINT SHOP	"	x							x	100	0	
43	—		UNIDENTIFIED	———	OFFICE			x				x		45	—	
44	25		"	STORAGE	(NO CHECK)			x						45	—	
45	14		~~PROB. SCHOOL~~ UNIDENTIFIED	RECEIVING AND STORAGE	STORAGE			x		x				45	85	
46	16		PROB. SCHOOL	OFFICE	OFFICES		x			x				80	100	
47	15		BUILDING UNDER CONST.	UNDER CONSTRUCTION	BUILDING UNDER CONST.	x				x				100	100	
48	17	x	GENERATOR	———	GENERATOR/TRANSFORMER	x						x		73	45	
49	18	x	BOILER HOUSE	POWER HOUSE	BOILER	x					x			100	85	
50	19	x	MACHINE SHOP & SMALL PARTS MFG.	MACHINE SHOP	MISC. SHOP AND STORAGE	x				x				85	85	
51	20	x	SUB-ASSEMBLY	MACHINE SHOP	LIGHT ALLOY SHAPING		x				x			85	85	
52	22D		STORAGE	PARTS PAINT	STORAGE, WASHROOM, PAINT SHOP	x					x			85	85	
53	22C		UNIDENTIFIED	"	"			x			x			45	85	
54	22B		"	"	"			x			x			45	85	
55	22A		"	"	"			x			x			45	85	
56	21	x	SUB-ASSEMBLY AND PAINT SHOP	ANNODIZING	WOODWORK/PAINT SHOP	x							x	100	0	
57	23	x	MAJOR AND FINAL ASSEMBLY	ASSEMBLY	MAJOR AND FINAL ASSEMBLY	x				x				100	100	
58	24		STORAGE	FABRIC COVERING	STORAGE	x							x	85	0	
59	—		"	———	"	x								85	—	
60	13		UNIDENTIFIED	———	OFFICE			x				x		45	45	
61	12		PROB. STORAGE OR OFFICE	———	"	x						x		80	45	
62	—		STORAGE	———	STORAGE	x								85	—	
63	—		"	———	"	x								85	—	
64	11		PROB. STORAGE OR OFFICE	———	OFFICE	x						x		80	45	
65	10		PROB. SHOP	TUBING DEPARTMENT	STORAGE		x			x				65	85	
66	9a		STORAGE	PROB. MESS HALL	"	x							x	85	5	
67	8	x	BLDG. UNDER CONST.	UNDER CONST.	(EVENTUAL SHOP)	x				x				100	100	
68	7E	x	ADMINISTRATION OFFICES	PROB. TRADE SCHOOL	OFFICES	x					x			100	80	
69	7D	x	"	"	"	x					x			100	80	
70	7C	x	"	"	"	x					x			100	80	
71	7B	x	"	"	"	x					x			100	80	
72	7A	x	"	"	"	x					x			100	80	

TABLE #1

BUILDING NO. UTG ~~AC/AS~~	BUILDING NO. C.I.U.	PRIMARY	FUNCTION REPORTED ~~AC/AS~~ UTG	FUNCTION REPORTED C.I.U.	FUNCTION ACTUAL	EVALUATION ~~UTG AC/AS~~ CORRECT	~~UTG AC/AS~~ SIMILAR	~~UTG AC/AS~~ UNIDENT.	~~UTG AC/AS~~ WRONG	C.I.U. CORRECT	C.I.U. SIMILAR	C.I.U. UNIDENT.	C.I.U. WRONG	POINT SCORE ~~UTG AC/AS~~	POINT SCORE C.I.U.
23	—	X	UNIDENTIFIED	———											
24	6B		OFFICE	PROB. TRADE SCHOOL	LABS, WIND TUNNEL, TANKS, ETC.			X				X		45	45
25	6A		"	"	OFFICE	X					X			100	180
26	5	X	MAJOR AND SUB-ASSEMBLY	SUB-ASSEMBLY	"	X					X			100	180
27	4	X	FINAL ASSEMBLY	"	EXPERIMENTAL MFG & ASSEMBLY	X				X				100	100
28	3		UNIDENTIFIED	———	EXPERIMENTAL FINAL ASSEMBLY	X				X				100	95
29	2A-2D		"	STORAGE	STORAGE			X				X		46	45
30	1A-1F		STORAGE	"	"			X		X				46	85
						X				X				85	85
					TOTAL ALL BUILDINGS :	63	6	13	0	30	19	20	7	6626	4910
					AVERAGE ALL BUILDINGS :									82	69
					TOTAL PRIORITY BUILDINGS :	26	4	1	0	15	10	5	1	2883	2345
					AVERAGE PRIORITY BUILDINGS :									93	76

TARGET NO. 90.20-1729 | PAGE 3

3RD LEVEL REPORT

REMARKS

S/A TABLE #2

TARGET NO. 90.20-1129 | PAGE 1

3RD LEVEL REPORT

BUILDING NO. VIC A/C/AS	C.I.U.	PLAN AREA 1000 SQ. FT. A	REPORTED A/C/AS	REPORTED C.I.U.	HEIGHT IN FEET NUMBER FLOORS / STORIES A	REPORTED A/C/AS	REPORTED C.I.U.	SIZE OF BAY A	SIZE OF BAY R	ROOF MATERIAL A	ROOF MATERIAL REPORTED A/C/AS	ROOF MATERIAL REPORTED C.I.U.	COMBUSTIBILITY OF BUILDING A	COMBUSTIBILITY OF BUILDING REPORTED A/C/AS	COMBUSTIBILITY OF BUILDING REPORTED C.I.U.	CONSTR'N TYPE A	CONSTR'N TYPE R	REMARKS
1	57	12.9		14.4	/11		39-14	?		?			C			?		
2	56	12.9		14.4	/11		39-14	?		?			C			?		
3	—	6.0		—	/11		—	?		?			C			D		
4	55	20.9		21.8	/12		31-16	?		T			C			?		
5	50B	7.5		5.7	/12		23-15	?		?			C			D		
6	50A	22.5		24.0	/12		23-15	?		?			C			?		
7	54B	5.6		5.7	/22		27-21	?		T			C			D		
8	54A	7.0		7.3	/22		27-21	?		T			C			D		
9	49B	12.0		12.7	/26		31-21	?		?			C			?		
10	49A	12.0		12.7	/24		31-21	?		?			C			?		
11	53	16.5		13.7	/56		58-59	1		CA			N			A2.3		
12	48	18.0		20.1	/18		27-14	?		T			C			?		
13	47	11.9		13.9	/24		31-21	?		?			C			?		
14	52	10.2		11.9	/15		54-16	1		T			C			?		
15	51	10.3		10.8	/23		34-16	?		NO DATA AVAILABLE			?			?		
16	46	15.3		16.7	/24		54-?	1		CA			N			A2.3		
17	44	6.1		6.5	/26		42-30	?		?			C			D		
18	43	12.5		20.0	/—		50-?	?		T			C			?		
19	42	25.2		23.6	/—		31-?	?		T			C			?		
20	45	19.8		21.1	/20		47-23	1		CA			N			A2.3		
21	41	34.1		35.1	/20		34-21	?		T			C			?		
22	40	160.0		162.5	/32		41-34	1		CA			N			A1.1		
23	39	208.0		212.0	/40		60-47	1		B/U ON CA			N			C1.1		
24	38	19.4		21.4	/13		27-16	?		T / R/C			C			?		
25A	33	9.7		9.2	/30		?-27	1		CA			C-N			D		
25B	33	11.4		—	/—		—	1		CA			N			A2.3		
26	35	13.5		13.8	/24		31-21	1		T			C			A2.3		
27	34	—		15.3	/24		41-27	?		NO DATA AVAILABLE			?			?		
28	32	13.5		13.4	/24		31-21	1		T			C			A2.3		
29	—	—		—	/—		—	?		NO DATA AVAILABLE			?			?		
30	—	9.3		—	/—		—	?		?			C			D		
31	—	9.3		—	/—		—	?		T			C			D		
32	—	9.3		—	/—		—	?		T			C			D		
33	31B	93.4		96.0	30/24		34-21	1		T			C			A2.3		
34	31A	13.4		15.4	/26		44-27	2		T			C			E2		
35	36	94.1		95.3	33/18		33-26	1		CA			N			A1.1		
36A	30	118.0		118.8	33/18		33-26	1		CA			N			A1.1		

S/A TABLE #2

TARGET NO. 90.20-1729 — 3RD LEVEL REPORT — PAGE 2

BUILDING NO. UTG ~~ARMS~~	C.I.U.	PLAN AREA 1000 SQ. FT. A	PLAN AREA 1000 SQ. FT. REPORTED ~~ARMS~~	PLAN AREA 1000 SQ. FT. REPORTED C.I.U.	HEIGHT IN FEET ~~NUMBER FLOORS~~ STORIES A	HEIGHT IN FEET ~~NUMBER FLOORS~~ STORIES REPORTED ~~ARMS~~	HEIGHT IN FEET ~~NUMBER FLOORS~~ STORIES REPORTED C.I.U.	SIZE OF ~~BAY~~ A	SIZE OF ~~BAY~~ R	ROOF MATERIAL A	ROOF MATERIAL REPORTED ~~ARMS~~	ROOF MATERIAL REPORTED C.I.U.	COMBUSTIBILITY OF BUILDING A	COMBUSTIBILITY OF BUILDING REPORTED ~~ARMS~~	COMBUSTIBILITY OF BUILDING REPORTED C.I.U.	CONSTR'N TYPE A	CONSTR'N TYPE R	REMARKS
36B	30	—		—	—/—	—	54-47	1		CA			N			A1.1		
37	37	68.6		69.5	42/—		41-32	1		CA			N			A1.1		
38	29	86.5		86.6	36/—		33-26	1		CA			N			A1.1		
39	28	198.0		198.0	60/48		57-45	1		CA			N			A1.1		
40	—	1.8		—	—/—		—	2		T			C			D		
41	27	22.2		23.4	90/—		88-63	1		CA			N			~~A2.3~~		
42	26	40.9		42.7	160/—		151-54	1		CA			N			A2.3		
43	—	3.6		—	—/—		—	2		TonW			C			D		
44	25	—		—	—/10		10	1		CA			C			A2.3		
45	14	8.3		7.2	—/12		14	1		T			C			D		
46	16	—		37.7	—/29		47-34	?	NO	DATA	AVAILABLE		?			?		
47	15	—		9.1	29/—		21-13	?	NO	DATA	AVAILABLE		?			?		
48	17	5.6		5.9	—/—		52-?	2		CA			R			D		
49	18	10.8		11.7	—/—		54-?	1		CA			N			A2.3		
50	19	75.6		75.6	36/—		33-27	1		CA			N			A1.1		
51	20	86.5		86.6	36/—		33-27	1		CA			N			A1.1		
52	22D	6.9		7.2	36/—		33-21	1		CA?			C			D		
53	22C	6.9		7.2	36/—		33-21	1		CA?			C			D		
54	22B	6.9		7.2	36/—		33-21	1		CA?			C			D		
55	22A	6.9		7.2	36/—		33-21	1		CA?			C			D		
56	21	98.7		102.9	36/—		33-27	1		CA			N			A1.1		
57	23	130.0		130.0	60/—		54-44	1		CA-W			N			C1.1		
58	24	—		44.4	33/—		27-16	?		T			C			?		
59	—	—		—	—/—		—	?	NO	DATA	AVAILABLE		?			?		
60	13	7.8		12.1	—/—		—	?		T			C			D		
61	12	5.8		7.8	—/—		54-?	2		TonW			C			D		
62	—	6.9		—	—/—		—	2		TonW			C			D		
63	—	6.9		—	—/—		—	2		TonW			C			D		
64	11	—		16.3	—/—		?-31	2		T			C			E2		
65	10	63.2		64.0	30/—		33-21	1		TonW			C			A2.3		
66	9A	12.0		7.2	26/—		31-21	1		TonW			C			A2.3		
67	8	14.6		16.3	—/—		?-34	1		SM			N			A2.3		
68	7E	7.4		7.8	—/—		?-54	3		Conc			R			D		
69	7D	6.7		7.5	58/—		47-35	2		TonW			C			D		
70	7C	18.3		22.3	58/—		47-35	2		TonW			C			A2.3		
71	7B	18.3		22.3	58/—		47-35	?	NO	DATA	AVAILABLE		?			?		
72	7A	18.3		22.3	58/—		47-35	?	NO	DATA	AVAILABLE		?			?		

S/A TABLE #2

BUILDING NO.		PLAN AREA 1000 SQ. FT.			HEIGHT IN FEET NUMBER FLOORS			STORIES		ROOF MATERIAL			COMBUSTIBILITY OF BUILDING			CONSTR'N TYPE		TARGET NO. 90.20-1129 3RD LEVEL REPORT	PAGE 3
~~VTC ACTAS~~	C.I.U.	A	REPORTED ~~ACTAS~~	C.I.U.	A	REPORTED ~~ACTAS~~	C.I.U.	A	R	A	REPORTED ~~ACTAS~~	C.I.U.	A	REPORTED ~~ACTAS~~	C.I.U.	A	R	REMARKS
23	—	2.9		—	—/—		—	2		CA			N			D		
24	6B	—		7.5	—/—		47-40	?		?			C			?		
25	6A	—		7.5	—/—		47-40	?		?			C			?		
26	5	215.0		220.0	—/—		48-34-27	1		T			N			A1.1		
27	4	81.1		84.3	—/—		71-54			CA AND W			N			C1.1		
28	3	12.0		6.1	46/—		49-39	?		?			C			?		
29	2A-2D	—		12.5	—/—		21-18/35/24	1		CA			C			A2.3		
30	1A+F	[illegible] (21.6)		16.4	—/12		21-13	1		CA			C			D		
		24100		26115														
TOTAL :		~~24206~~		~~24612~~														
ACCURACY :			~~97.8%~~ 92%															
			96%	(LINEAR)														

VIII. PHOTO INTERPRETATION AND GENERAL INTELLIGENCE CHECK

1. General

a. Purpose. This section attempts to evaluate qualitatively the accuracy of all photographic interpretation (P.I.) and general intelligence concerning the Eitoku Plant of Aichi Aircraft Co. Such a report must examine the three prime phases of intelligence study in a program of this nature:

(1) The analysis of the target's function to determine its importance and operational priority.

(2) The analysis of its construction to determine the bomb load, fusing and striking force necessary for optimum destruction.

(3) The post-strike analysis of damage to determine the effectiveness of the mission.

b. Method.

(1) The bulk of intelligence in the Pacific Ocean Area emanated from photographic sources; emphasis, therefore, is placed upon photo interpretation in this report.

(2) Since the photographic analyses of construction and damage are generally presented on a numerical basis, it is simple to evaluate their accuracy directly by comparing the figures they present with the actual figures obtained through ground study.

(3) Neither the photographic analysis of function nor such data obtained during a ground survey, however, can be

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presented on a quantitative basis. It was found desirable, therefore, to devise an arbitrary table of "accuracy factors" to describe numerically the accuracy of any identification of function. As no functional identification can be considered simply "right" or "wrong", account was taken of specificity of identification, conviction of identification, and degree of accuracy. The resulting values run from zero (0) to one hundred (100); the higher the number, the more valuable the identification. The value of an unidentified installation was arbitrarily set at forty-five (45); thus any figure above forty-five indicates intelligence information and any figure below forty-five indicates intelligence misinformation. (See Table 4)

(4) The evaluation of P.O.W. and other ground intelligence has been reserved for Paragraph 5.

(5) It was assumed that P.I. Reports are accepted at face value by weapons analysts. In practice, however, this was not always the case as such qualifying words as " "possible" and "probable", were often disregarded. The present evaluation of the accuracy of functional analyses is therefore purely theoretical. This is necessary for qualitative assessment and in no way impairs the value of the report.

c. Value of Results.

(1) An interesting comparison can be made between two independently prepared functional analysis reports, one originating in the field and the other in Washington.

(2) The data herein loses value in that no extensive photo structural analysis was made of the plant; field team data is somewhat obscured on account of repairs effected by American occupation troops, damage from earthquakes, an unusual number of plant fires, erratic removal of buildings for firebreaks, and the variety of bomb incidents and spill-overs from urban area raids.

(3) As a whole, the report gives a ~~fair~~ Good estimate of intelligence efficacy.

2. Photo Interpretation of Function.

a. General.

(1) Both extant functional analysis reports (I.R. 6 and F/A - 71) outline the boundaries of the plant correctly.

(2) I.R. 6 gives no indication that photo interpretation was responsible for the determination of the plant's over-all function; no estimate is hazarded of the plant's productive capacity. The statement is made that it "....is engaged in final assembly of PAUL and possibly JUDY". This identification arose from the identification of several planes west of building J.T.G. #39. F/A - 71 states: "The plant has four major and final assembly sections, which strongly suggests that at least four plane types are made here. However, ...

JUDYS are the only aircraft identified." Again, no production estimate is given.

(3) The principal product of the plant actually was the JUDY in models 11, 12, 33 and 43; at least five additional aircraft were assembled, including the PAUL. The planes appearing on photographs taken 19 January 45 (which both reports utilize for plane identification) were actually four PAULS and three JUDYS; the misinterpretation of F/A - 71 is not a serious error and probably resulted from the difficulty of spotting the single float lost in the shadows of the fuselage. It was erroneous to suppose that, since the plant contained large, assembly-type structures, orthodox "assembly lines" were set up; in actuality, no systematised plant-flow (by occidental standards) could have been traced. The identification of four major and final assembly sections, therefore, was misleading as confirmation of the diversity of plane types; as it turned out, the assumption that several types of planes were manufactured was correct.

(4) The underground facilities of the plant were not extensive and almost impossible to spot. A bomb crater located at the road intersection near building J.T.G. #66 might have served as a clue for the discovery, but only if covered by large-scale photography

which was not available at the time. The underground space served for no other purpose but storage, rest rooms, etc.

(5) General functional interpretation is adjudged good.

b. Specific

(1) A summary of Table 1 for the identification of specific installations follows:

	I.R. #6 Buildings		F/A - 71 Buildings	
Identification	All	Primary	All	Primary
Generally correct	30	15	63	26
Generally close	19	10	6	4
Unidentified	20	5	13	1
Incorrect	7	1	0	0

(Note: discrepancies in all the following table totals are due to non-availability of data on some installations).

(2) Average accuracy by factor method follows:

	All Buildings	Primary Buildings
I.R. #6	69%	76%
F/A - 71	82	93
Average	76	85

(3) Specific functional interpretation is adjudged excellent.

3. Photo Interpretation of Construction

a. Scale

	Indicated R.F.	Actual R.F.	Accuracy
F/A - 71	1/6000	1/6140	97.8%
I.R. #6	1/9750;1/1642	1/9660;1/1602	98.9
D/A #19	1/1625	1/1602	98.6
D/A #177	1/9000;1/1600	1/8530;1/1602	97.4
Average			98.2

b. Structural

(1) Table 2 for I.R. #6 indicates 92% accuracy in measuring plan area and 96% accuracy in measuring linear dimensions.

(2) No complete structural analysis exists for the plant. The omission of such information as heights of buildings, vulnerability to H.E. and I.B., etc., is detrimental to the planning of an effective mission; weapons analysts had to rely upon the meager information furnished in Joint Target Folders and upon the examination of photographs.

(3) Twenty-seven (27) small installations were omitted from P.I. reports; their total area is approximately 48,400 sq. ft. They are all storage sheds or small offices except the following: USSBS ~~Jap~~.Nos. 52 and 53 - wind tunnel and labs; USSBS ~~Jap~~.No. 103 - small shop; USSBS ~~Jap~~. No. 117 - pump house. The effect of their omission is negligible.

(4) Structural interpretation because of its many omissions, is adjudged poor.

4. Photo Interpretation of Damage

a. General

(1) Three Damage Assessment Reports were made of the plant, all of them in the field.

(2) The determination of cause of damage was correct in each case.

b. Specific

(1) Table #3 indicates the following:

Damage	Reported (Sq. ft.)	Actual (Sq. ft)
Structural (incl. destroyed)	451,000	497,500
Superficial (all categories)	515,900	1,123,500
Total	966,900	(1,621,000
Total plus erroneous Repetition	1,062,000	(1,621,000

(2) The reported structural damage is accurate principally because about 90% of it is concerned with buildings completely destroyed by fire; it was a simple matter to copy the total plan area for each building from I.R. #6. The slight discrepancy is due to the small original error in calculating scale, (See C. 1.) and to the repetition of approximately 21,000 sq. ft. of old damage (Buildings J.T.G. Nos. 32, 59 and 60).

(3) The large error in the interpretation of superficial damage is due largely to what were probably typographical slips or carelessness and forced speed. Almost the total error can be picked up in buildings J.T.G. Nos. 23, 25, 39, 41 and 76. Additional discrepancies can be attributed to vagueness in definition of damage and to the repetition of some old damage.

(4) Plant operations continued in many of the superficially damaged structures; underestimation of this damage, therefore, was not misleading in the determination of future strikes against the target.

(5) (SEE INSERT)

(5) General AND SPECIFIC damage interpretation is adjudged to be adequate.

5. Other Intelligence Sources

a. General intelligence attributed production of too many aircraft types to the plant upon the assumption that the original Funakata plant (Target 90:20 - 198) had been entirely converted to parts production. In actuality VAL was assembled only at the Funakata plant as was the newer GRACE. Production of both JUDY and PAUL was substantially over-estimated through June. The information contained in AAF Objective Folder 90:20 of 6 July 1944 was, of course, already out of date when all reports were compiled.

b. Intelligence sources other than photographic could have been dispensed with entirely with almost identical results.

6. Conclusions

a. The importance and operational priority of the target were indicated by a good functional analysis.

b. The bomb load, fusing and striking force necessary for optimum destruction of the target had to be determined by makeshift methods because of the dearth of structural information.

c. The effectiveness of missions was adequately determined by a fair damage analysis.

7. Sources

a. Data obtained by Physical Damage Team No. 5, USSBS.

b. Functional Analysis Report No. F/A - 71, Photo Intelligence Section, Evaluation Branch, Photographic Division, AC/AS, Intelligence, 28 February 1945, (CONFIDENTIAL).

c. Industrial Report No. 6, C.I.U., XXI Bomber Command, APO 234, c/o Postmaster, San Francisco, Calif., 9 March 1945, (CONFIDENTIAL).

d. Damage Assessment Report No. 19, C.I.U., XXI Bomber Command, APO 234, c/o Postmaster, San Francisco Calif., 16 March 1945, (CONFIDENTIAL).

e. Damage Assessment Report No. 124, C.I.U., XXI Bomber Command, APO 234, c/o Postmaster, San Francisco, Calif., 9 July 1945, (CONFIDENTIAL).

f. Damage Assessment Report No. 177, C.I.U., Twentieth Air Force, APO 234, c/o Postmaster, San Francisco, Calif., 13 August 1945, (CONFIDENTIAL).

g. Bomb Load Recommendations, Prepared jointly by Chemical Warfare, Ordnance and Operations Analysis Section, 15 February 1945.

(1)
Check Industrial number mentioned in report and see that these agree on table 1, 2, & 3.

(2)
Statement regarding damage plot to be inserted. (Plot to be copied.)

NHB

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(2) I.R. 6 gives no indication that photo interpretation was responsible for the determination of the plant's over-all function; no estimate is hazarded of the plant's productive capacity. The statement is made that it "....is engaged in final assembly of PAUL and possibly JUDY". This identification arose from the identification of several planes west of building J.T.G. #39. F/A - 71 states: "The plant has four major and final assembly sections, which strongly suggests that at least four plane types are made here. However, ...

JUDYS are the only aircraft identified." Again, no production estimate is given.

(3) The principal product of the plant actually was the JUDY in models 11, 12, 33 and 43; at least five additional aircraft were assembled, including the PAUL. The planes appearing on photographs taken 19 Junuary 45 (which both reports utilize for plane identification) were actually four PAULS and three JUDYS; the misinterpretation of F/A - 71 is not a serious error and probably resulted from the difficulty of spotting the single float lost in the shadows of the fuselage. It was erroneous to suppose that, since the plant contained large, assembly-type structures, orthodox "assembly lines" were set up; in actuality, no systematized plant-flow (by occidental standards) could have been traced. The identification of four major and final assembly sections, therefore, was misleading as confirmation of the diversity of plane types; as it turned out, the assumption that several types of planes were manufactured was correct.

(4) The underground facilities of the plant were not extensive and almost impossible to spot. A bomb crater located at the road intersection near building J.T.G. #66 might have served as a clue for the discovery, but only if covered by large-scale photography

which was not available at the time. The underground space served for no other purpose but storage, rest rooms, etc.

(5) General functional interpretation is adjudged good.

b. Specific

(1) A summary of Table 1 for the identification of specific installations follows:

	I.R. #6 Buildings		F/A - 71 Buildings	
Identification	All	Primary	All	Primary
Generally correct	30	15	63	26
Generally close	19	10	6	4
Unidentified	20	5	13	1
Incorrect	7	1	0	0

(Note: discrepancies in all the following table totals are due to non-availability of data on some installations).

(2) Average accuracy by factor method follows:

	All Buildings	Primary Buildings
I.R. #6	69%	76%
F/A - 71	82	93
Average	76	85

(3) Specific functional interpretation is adjudged excellent.

3. Photo Interpretation of Construction

a. Scale

	Indicated R.F.	Actual R.F.	Accuracy
F/A - 71	1/6000	1/6140	97.8%
I.R. #6	1/9750;1/1642	1/9660;1/1602	98.9
D/A #19	1/1625	1/1602	98.6
D/A #177	1/9000;1/1600	1/8530;1/1602	97.4
Average			98.2

b. Structural

(1) Table 2 for I.R. #6 indicates 92% accuracy in measuring plan area and 96% accuracy in measuring linear dimensions.

(2) No complete structural analysis exists for the plant. The omission of such information as heights of buildings, vulnerability to H.E. and I.B., etc., is detrimental to the planning of an effective mission; weapons analysts had to rely upon the meager information furnished in Joint Target Folders and upon the examination of photographs.

(3) Twenty-seven (27) small installations were omitted from P.I. reports; their total area is approximately 48,400 sq. ft. They are all storage sheds or small offices except the following: ~~Jap~~ USSBS Nos. 52 and 53 - wind tunnel and labs; ~~Jap~~ USSBS No. 103 - small shop; ~~Jap~~ USSBS No. 117 - pump house. The effect of their omission is negligible.

(4) Structural interpretation because of its many omissions, is adjudged poor.

4. Photo Interpretation of Damage

a. General

(1) Three Damage Assessment Reports were made of the plant, all of them in the field.

(2) The determination of cause of damage was correct in each case.

b. Specific

(1) Table #3 indicates the following:

Damage	Reported (Sq. ft.)	Actual (Sq. ft)
Structural (incl. destroyed)	451,000	497,500
Superficial (all categories)	515,900	1,123,500
Total	966,900	(1,621,000
Total plus erroneous Repetition	1,062,000	(1,621,000

(2) The reported structural damage is accurate principally because about 90% of it is concerned with buildings completely destroyed by fire; it was a simple matter to copy the total plan area for each building from I.R. #6. The slight discrepancy is due to the small original error in calculating scale, (See C. 1.) and to the repetition of approximately 21,000 sq. ft. of old damage (Buildings J.T.G. Nos. 32, 59 and 60).

(3) The large error in the interpretation of superficial damage is due largely to what were probably typographical slips or carelessness and forced speed. Almost the total error can be picked up in buildings J.T.G. Nos. 23, 25, 39, 41 and 76. Additional discrepancies can be attributed to vagueness in definition of damage and to the repetition of some old damage.

(4) Plant operations continued in many of the superficially damaged structures; underestimation of this damage, therefore, was not misleading in the determination of future strikes against the target.

(5) SEE INSERT FOR BOMB PLOT

(6) General AND SPECIFIC damage interpretation is adjudged to be adequate.

5. Other Intelligence Sources

a. General intelligence attributed production of too many aircraft types to the plant upon the assumption that the original Funakata plant (Target 90:20 - 198) had been entirely converted to parts production. In actuality VAL was assembled only at the Funakata plant as was the newer GRACE. Production of both JUDY and PAUL was substantially over-estimated through June. The information contained in AAF Objective Folder 90:20 of 6 July 1944 was, of course, already out of date when all reports were compiled.

b. Intelligence sources other than photographic could have been dispensed with entirely with almost identical results.

6. Conclusions

a. The importance and operational priority of the target were indicated by a good functional analysis.

b. The bomb load, fusing and striking force necessary for optimum destruction of the target had to be determined by makeshift methods because of the dearth of structural information.

c. The effectiveness of missions was adequately determined by a fair damage analysis.

7. Sources

a. Data obtained by Physical Damage Team No. 5, USSBS.

b. Functional Analysis Report No. F/A - 71, Photo Intelligence Section, Evaluation Branch, Photographic Division, AC/AS, Intelligence, 28 February 1945, (CONFIDENTIAL).

c. Industrial Report No. 6, C.I.U., XXI Bomber Command, APO 234, c/o Postmaster, San Francisco, Calif., 9 March 1945, (CONFIDENTIAL).

d. Damage Assessment Report No. 19, C.I.U., XXI Bomber Command, APO 234, c/o Postmaster, San Francisco Calif., 16 March 1945, (CONFIDENTIAL).

e. Damage Assessment Report No. 124, C.I.U., XXI Bomber Command, APO 234, c/o Postmaster, San Francisco, Calif., 9 July 1945, (CONFIDENTIAL).

f. Damage Assessment Report No. 177, C.I.U., Twentieth Air Force, APO 234, c/o Postmaster, San Francisco, Calif., 13 August 1945, (CONFIDENTIAL).

g. Bomb Load Recommendations, Prepared jointly by Chemical Warfare, Ordnance and Operations Analysis Section, 15 February 1945.

VIII. PHOTO INTERPRETATION AND GENERAL INTELLIGENCE CHECK

A. General

a. Purpose: This section attempts to evaluate qualitatively the accuracy of all photographic interpretation (P.I.) and general intelligence concerning the Eitoku Plant of Aichi Kokuki K. K. Such a report must examine the three prime phases of intelligence study in a program of this nature:

(1). a. The analysis of the target's function to determine its importance and operational priority.

(2). b. The analysis of its construction to determine the bomb load, fusing and striking force necessary for optimum destruction.

(3). c. The post-strike analysis of damage to determine the effectiveness of the mission.

b. Method.

(1). a. The bulk of intelligence in the PACIFIC OCEAN AREA emanated from photographic sources; emphasis, therefore, is placed upon photo interpretation in this report.

(2). b. Since the photographic analyses of construction and damage are generally presented on a numerical basis, it is simple to evaluate their accuracy directly by comparing the figures they present with the actual figures obtained through ground study.

(3). c. Neither the photographic analysis of function nor such data obtained during a ground survey, however, can be presented on a quantitative basis. It was found desirable, therefore, to devise an arbitrary table of "accuracy factors" to describe numerically the accuracy of any identification of function. As No functional identification can be considered simply "right" or "wrong"; account was taken of specificity of identification, conviction in identification, and degree of accuracy. The resulting VALUES numbers run from zero (0) to one hundred (100); the higher the number, the more valuable the identification. The value of an unidentified installation was

arbitrarily set at forty-five (45); thus any figure above forty-five indicates intelligence information and any figure below forty-five indicates intelligence misinformation. (See Table 4).

(4) d. The evaluation of P.O.W. and other ground intelligence has been reserved for ~~section~~ ~~sub-section E.~~ Paragraph 5

(5) e. It was assumed that P.I. Reports are accepted at face value by weapons analysts. In practice, however, this ~~is~~ was not always the case as such qualifying words ~~such~~ as "possible" and "probable", ~~for example, are~~ were often disregarded. The present evaluation of the accuracy of functional analyses is therefore purely theoretical. This is necessary for qualitative assesment and in no way impairs the value of the report.

C. ~~7.~~ Value of Results

(1) ~~a.~~ An interesting comparison can be made between two independently prepared functional analysis reports, one originating in the field and the other in Washington.

(2) ~~b.~~ The data herein loses value in that no extensive photo structural analysis was made of the plant; field team data is somewhat obscured ~~due to~~ on account of repairs effected by American occupation troops, damage from earthquakes, an unusual number of plant fires, erratic removal of buildings for firebreaks, and the variety of bomb incidents and spill-overs from urban area raids.

(3) ~~c.~~ As a whole, the report gives a fair estimate of intelligence efficacy.

2. ~~B.~~ Photo Interpretation of Function.

a. 1. General

(1) ~~a.~~ ~~The extant functional analysis reports~~ Both extant functional analysis reports (I.R. 6 and T/A - 71) outline the boundaries of the plant correctly.

(2) ~~b.~~ I.R. 6 gives no indication that photo interpretation was re-

sponsible for the determination of the plant's over-all function; no estimate is hazarded of the plant's productive capacity. The statement is made that it "...is engaged in final assembly of ~~[redacted]~~ PAUL and possibly JUDY". - ~~Such~~ This identification ~~arising~~ arose from the ~~spotting~~ identification of several planes west of building J.T.C. #39. F/A - 71 states ~~that~~ "The plant has four major and final assembly sections, which strongly suggests that at least four plane types are made here. However, ... JUDYS are the only aircraft identified." ~~Once~~ Again, no production estimate is given.

(3). ~~c.~~ The principal product of the plant actually was the JUDY in models 11, 12, 33 and 43; at least five additional aircraft were assembled, including the PAUL. The planes appearing on photographs ~~of~~ taken 19 January 45 (which both reports utilize for plane identification) were actually four PAULS and three JUDYS; the misinterpretation of F/A - 71 is not a serious error and probably resulted from the difficulty of spotting the single float lost in the shadows of a fuselage. It was erroneous to suppose that, since the plant contained large, assembly-type structures, orthodox "assembly lines" were set up; in actuality, no systematized plant-flow (by occidental standards) could have been traced. The identification of four major and final assembly sections, therefore, was misleading as confirmation of the diversity of plane types; as it turned out, the assumption that several types of planes were manufactured was correct.

(4). [redacted] [COPY FROM ATTACHED SHEET]

(5). 2. General functional interpretation is adjudged good.

2. Specific.

b. (1). a. A summary of Table #1 for the identification of specific installations follows:

	I.R. #6		F/A - 71	
	All bldgs	Primary bldgs.	All bldgs	Primary B.
Generally correct identification	30	15	63	26
Generally close identification	19	10	6	4
Unidentified	20	5	17	1
Incorrect	7	1	0	0

THE FOLLOWING ALL A TABLE

(Note: discrepancies in totals due to non-availability of data on some installations).

(4)

d. The underground facilities of the plant were not extensive and almost impossible to spot. A bomb crater located at the road intersection near building J.T.G. #66 might have served as ~~the~~ a CLUE ~~touchstone~~ for the discovery, but only if covered by large-scale photography which was not available at the time. The underground space served for no other purpose but storage, rest rooms, etc.

(2).
b. Average accuracy by factor method follows:

	All buildings	Primary buildings
I.R. #6:	69%	76%
F/A -71:	82	93
Average:	76	85

(3).
c. Specific functional interpretation is adjudged excellent.

3.
C. Photo Interpretation of Construction

a. ~~1.~~ Scale

~~Indicated R/F~~	Indicated R.F.	Actual R.F.	Accuracy
F/A - 71:	1/6000	1/6140	97.8%
I.R. #6:	1/9750;1/1642	1/9660;1/1602	98.9
D/A #19:	1/1625	1/1602	98.6
D/A #177:	1/9000;1/1600	1/8530;1/1602	97.4%
Average:			98.2

b. ~~2.~~ Structural

(1).
a. Table #2 for I.R. #6 indicates 92% accuracy in measuring plan area and 96% accuracy in measuring linear dimensions.

(2).
b. No complete structural analysis exists for the plant. The omission of such information as heights of buildings, vulnerability to H.E. and I.B., etc., is ~~not conducive~~ DETRIMENTAL to the planning of an effective mission; weapons analysts had to rely upon the meager information furnished in Joint Target Folders and upon ~~their own eyes.~~ THE EXAMINATION ~~OBSERVATION~~ OF PHOTOGRAPHS.

(3).
c. Twenty-seven (27) small installations were omitted from P.I. reports; their total area is approximately 48,400 sq. ft. ~~This~~ They are all storage sheds or small offices except the following: Jap. Nos. 52 and 53 - wind tunnel and labs; Jap. #103 - small shop; Jap. #117 - mmm house. The ~~This~~ effect of their omission is negligible.

(4).
d. Structural interpretation, because of its many omissions, is adjudged poor.

4
D. Photo Interpretation of Damage

a. General

(1).
a. Three Damage Assessment Reports were made of the plant, all of them in the field.

(2).
b. The determination of cause of damage was correct in each case.

6. Specific

(1).
a. Table #3 indicates the following:

	Reported	Actual
Structural damage (including destroyed):	451,000 sq. ft.	497,500 sq. ft.
Superficial damage (all categories):	515,900	1,123,500
Total:	966,900	1,621,000
TOTAL PLUS ERRONEOUS REPETITION:	1,062,000	1,621,000

(2).
b. The reported structural damage is remarkably accurate principally because ABOUT 90% of it is concerned with buildings completely destroyed by fire; it was a simple matter to simply copy the total plan area for each building from I.R. #6. The slight discrepancy is due to the small original error in calculating scale, (See C. 1.) and to the repetition APPROXIMATELY inclusion of ~~[illegible]~~ 21,000 sq. ft. of old damage. (Buildings J.T.G. Nos. ~~#'s~~ 32, 59 and 60).

(3).
c. The large error in the interpretation of superficial damage is due largely to what were probably typographical slips or carelessness and forced speed. Almost the total error can be picked up in buildings J.T.G. NOS. ~~#'s~~ 23, 25, 39, 41 and 76. Additional discrepancies can be attributed to vagueness in definition of damage AND TO THE REPETITION OF SOME OLD DAMAGE.

(4). Plant operations continued in many of the superficially damaged structures; underestimation of this damage, therefore, was not misleading in the determination of future ~~[illegible]~~ strikes against the target.

(5).
e. General damage interpretation is adjudged to be adequate.

5. Other Intelligence Sources

a. General intelligence attributed production of too many aircraft types to the plant upon the assumption that the original Fina-

(TARGET) WO.20-198

kata plant had been entirely converted to parts production. In actuality, VAL was assembled only at the Funakata plant as was the newer GRACE. Production of both JUDY and PAUL was substantially overestimated through June. The information contained in AAF Objective Folder 90.20 of 6 July 1944 was, of course, already out of date when all reports were compiled.

6. Intelligence sources other than photographic could have been dispensed with entirely with almost identical results.

6. Conclusions

a. The importance and operational priority of the target were indicated by a good functional analysis.

b. The bomb load, fusing and striking force necessary for optimum destruction of the target had to be determined by makeshift methods because of the dearth of structural information.

c. The effectiveness of missions was adequately determined by a fair damage analysis.

7. Sources

a. Data obtained by Physical Damage Team #5, USSBS.

b. Functional Analysis Report No. F/A - 71, Photo Intelligence Section, Evaluation Branch, Photographic Division, AC/AS, Intelligence, 28 February 1945, (CONFIDENTIAL).

c. Industrial Report No. 6, C.I.U., XXI Bomber Command, APO 234, c/o Postmaster, San Francisco, Calif., 9 March 1945, (CONFIDENTIAL).

d. Damage Assessment Report No. 19, C.I.U., XXI Bomber Command, APO 234, c/o Postmaster, San Francisco, Calif., 16 March 1945, (CONFIDENTIAL).

e. Damage Assessment Report No. 124, C.I.U., XXI Bomber Command, APO 234, c/o Postmaster, SanFrancisco, Calif., 9 July 1945, (CONFIDENTIAL).

f. Damage Assessment Report No. 177, C.I.U., Twentieth Air Force, APO 234, c/o Postmaster, San Francisco, Calif., 13 August 1945, (CONFIDENTIAL).

g. Bomb Load Recommendations, Prepared jointly by Chemical Warfare, Ordnance and Operations Analysis Sections, 15 February 1945.

UNITED STATES STRATEGIC BOMBING SURVEY
(PACIFIC)

PHOTO-INTELLIGENCE CENTER
PHOTO-INDUSTRIAL SECTION

Third Level Report No._____
Page No._____

INDUSTRY: AIRCRAFT

NAME OF TARGET: AICHI AIRCRAFT, EITOKU PLANT

TARGET NUMBER: 90.20-1729

LOCATION: NAGOYA LAT. _____ LONG. _____

SOURCES OF DATA:

SUMMARY:

DESCRIPTION OF TARGET: SITE IS ROUGHLY RECTANGULAR, LONGER FROM N. TO S., AND IS BOUNDED ON W AND LARGE PART OF S BY SHANAI RIVER. W OF PLANT IS A CANAL WHICH BRANCHES AWAY TO NE.
AREA ABOUT 197 ACRES.

GENERAL REMARKS:

UNITED STATES STRATEGIC BOMBING SURVEY
(PACIFIC)

PHOTO INTELLIGENCE CENTER
PHOTO INDUSTRIAL SECTION

Third Level Report No._____
Page No._____

(C) D/A - DAMAGE ASSESSMENT:

1. (See D/A Table)

2. SUMMARY OF TABULATION:

3. SUMMARY OF REMARKS:

4. EFFECTS OF RAIDS ON PRODUCTION (If available):

12 MAR RAID. 110 PLANES TO 106
17 MAY " , LOSS IN PROD. OF TWO PLANES
26 JUNE & 24 JULY, LOSS OF 3 PLANES EACH.
MAN HOURS LOST, JAN-AUG = 5.6+5.1+4.6+1.8+5.7+1.0+1.2+0.2.
PLANE LOSSES DUE TO NO TRANSPORTATION:
17.4+11.3+22.1+19.8+17.3+11.7+11.1

5. SOURCES OF INFORMATION: (Both Report and Field Data)

Report written by: _____

Date;_____

90.20 - 1729
EITOKU PLANT,
AICHI A/C CO.

1. Scale Check:

a. Functional

(1) Functional Analysis Report No. F/A - 71, Photo Intelligence Section, Evaluation Branch, Photographic Division, AAF/AS, Intelligence, 28 February 1945, (CONFIDENTIAL).

Indicated R.F.: 1/6000
Actual R.F. : 1/6140
Accuracy : 97.8%

(2) Industrial Report No. 6, C.I.U., XXI Bomber Command, APO 234, c/o Postmaster, San Francisco, California, 9 March 1945, (CONFIDENTIAL).

Indicated R.F.: 1/9750
Actual R.F. : 1/9660
Graphic Scale Distance: 1642'
Actual Distance: 1602
Average Accuracy: 98.9%

(3) Average Accuracy all Functionals: 98.4%

b. Structural

Industrial Report No. 6 (See 1.a.(2) above)
Average Accuracy: 98.9%

c. Attack

(1) Damage Assessment Report No. 19 , C.I.U., XXI Bomber Command, APO 234, c/o Postmaster, San Francisco, California, 16 March 1945, (CONFIDENTIAL).

Graphic Scale Distance: 1625'
Actual Distance : 1602
Accuracy : 98.6%

(2) Damage Assessment Report No. 124, C.I.U., XXI Bomber Command, APO 234, c/o Postmaster, San Francisco, California, 9 July 1945, (CONFIDENTIAL).

No photo attached.

(3) Damage Assessment Report No. 177, C.I.U, Twentieth Air Force, APO 234, c/o Postmaster, San Francisco, California, 13 August 1945, (CONFIDENTIAL).

Indicated R.F. 1/9000
Actual R.F. : 1/8530
Graphic Scale Distance: 1600'
Actual Distance: 1602
Average Accuracy: 97.4%

(4) Average Accuracy all Attack Reports: 98.0%

d. Average Scale Accuracy all Reports this Target: 98.6%

TABLE .

BUILDING DATA

JTG Bldg NO	FUNCTION	AREAS IN 1,000 SQ. FT. Bsmt	Gr.Fl.	2d Flr.	3d Fl.
1	Shop	-	12.8	-	-
2	"	-	12.8	-	-
3	"	-	6.4	-	-
3a	"	-	1.9	-	-
4	Storage	-	20.7	-	-
5	"	-	7.5	-	-
6	Pipe Storage	-	22.4	-	-
7	Bicycle Storage	-	5.5	5.5	-
7a	Fire Station	-	2.4	-	-
8	Bicycle Storeage	-	6.7	6.7	-
9	Office	-	12.0	-	-
10	"	-	12.0	-	-
11	Forging Shop	-	16.5	-	-
12	Testing Laboratory	-	18.0	-	-
13	Mold Shop	-	11.7	11.7	-
14	Air Compressor Bldg	-	10.3	-	-
15	Kitchen	-	10.2	1.7	-
16	Foundry	-	15.3	-	-
17	Locker Room	-	6.0	-	-
18	Hospital	-	16.9	16.9	-
18a	Shed	-	1.1	1.1	-

JTG BLDG NO	FUNCTION	AREAS IN 1,000 SQ. FT. Bsmt	Gr.Fl	2d Fl	3d Fl.
18b	Storage	-	0.5	-	-
18c	Pumphouse	-	0.3	-	-
19	Locker Room	-	25.0	-	-
20	Heat Treatment	-	19.7	-	-
21	Shop	-	34.2	1.4	-
22	Wing Spar Shop	-	160.0	-	-
22a	Compressor House	-	1.7	-	-
23	Hangar	-	208.0	32.0	-
24	Dining Room	-	19.3	-	-
25a	Shop	-	12.9	2.1	-
25b	Heat Treatment Shop	-	9.1	-	-
26	Shop	0.6	13.5	0.2	-
27	Storage	-	7.8	-	-
28	Inspection of Dispersed Plants Products	-	13.6	-	-
28a	Shed	-	0.8	-	-
29	Storage	-	9.1	-	-
30	"	-	9.1	-	-
31	"	-	12.1	-	-
32	"	-	12.1	-	-
33	"	-	93.7	16.3	-
34	Office	-	13.3	13.3	-
35	Sheet Metal Shop	1.4	94.3	-	-

JTG BLDG NO	FUNCTION	AREAS IN 1,000 SQ. FT. Bsmt	Gr. Fl	2d Fl	3d Fl
35a	Shed	-	0.5	-	-
36	Machined Parts Shop	1.9	118.0	-	-
37	"Suisei" Sub-Assembly Shop	1.7	68.6	-	-
38	"Suisei" Wing	2.4	86.0	-	-
39	"Suisei" Body Assembly Shop	2.2	198.0	15.1	-
40	Flying Dept	-	5.1	3.0	-
41	Flight Outfitting Shop	-	22.1	-	-
41a	Shed	-	0.4	-	-
41b	Parts Storage	-	31.1	0.9	-
42	Flight Outfitting Shop	-	40.8	-	-
43	Office	-	3.6	3.5	-
44a	Shed	-	1.0	-	-
44b	"	-	1.8	-	-
44c	Fire Station	-	1.2	-	-
44d	Shed	-	2.8	-	-
44e	"	-	0.3	-	-
45a	"	-	0.9	-	-
45b	"	-	1.2	-	-
45c	"	-	0.5	-	-
45d	"	-	0.5	-	-
45e	"	-	0.5	-	-
45f	"	-	1.4	-	-

JTG BLDG NO	FUNCTION	AREAS IN 1,000 SQ. FT. Bsmt	Gr.Fl	2d Fl.	3d Fl.
46,47	Main Office	0.4	39.6	39.3	-
48	Transformer Bldg	-	5.7	1.2	-
48x	Pipe Fitting Shop	-	1.2	-	-
49	Boiler House	2.2	10.8	-	-
50	Parts Storage	1.8	75.0	-	-
51	Sheet Metal and Light Alloy Shop	1.8	85.8	-	-
52	Gov't Storage	-	6.8	-	-
53	" Shipping Office	-	6.8	-	-
54	" " "	-	6.8	-	-
55	" Storage	-	6.8	-	-
56	Wood Working Shop	0.7	38.7	-	-
57	"Zuiun" Wing and Body Assembly Shop	-	129.0	-	-
58	Storage for	-	42.6	-	-
59a	Office	-	1.9	-	-
59b	Fire Station	-	2.2	-	-
59c	Office	-	1.0	-	-
60	"	0.6	9.2	1.0	-
61	"	-	6.8	6.9	-
62	Storage	-	6.9	6.9	-
62a	Shed	-	0.7	-	-
62b	Storage	-	6.9	6.9	-

JTG BLDG NO	FUNCTION	AREAS IN 1,000 SQ. FT. Bsmt	Gr.Fl.	2d Fl.	3d Fl.
62c	Shed	-	1.2	-	-
63	Storage	-	6.9	6.9	-
63a	Pump House	-	0.1	-	-
63b	Post Office	-	1.4	-	-
63c	Storage	-	6.9	6.9	-
64	Office	-	12.6	11.4	-
65	Locker Rooms	-	61.5	-	-
66	Technical Offices	-	6.8	-	-
67	Shop Bldg	-	13.8	-	-
68	Air Raid Precaution Office	0.8	7.1	7.1	7.1
69	Technical Offices	-	7.2	7.2	-
70,71	" "	-	39.5	38.5	-
72	Laboratory	-	18.6	18.6	-
72a	"	2.1	5.3	4.6	2.5
72b	"	-	3.1	2.5	-
73	Float Testing Laboratory	-	28.5	2.8	-
73a	Test Cell Bldg	-	5.4	-	-
74,75	Technical Production Dept	-	14.7	14.7	-
76	Experimental Plane Shop	0.6	215.0	-	-

JTG BLDG NO	FUNCTION	AREAS IN 1,000 SQ. FT. Bsmt	Gr.Fl	2d Fl	3d Fl.	
77	Experimental Plane Assembly Shop	-	81.4	-	-	
78	Shop Office	-	8.8	8.8	-	
79a	Storage	-	3.7	-	-	
79b	"	-	4.3	-	-	
79c	"	-	4.3	-	-	
79d	"	-	3.0	-	-	
80a	"	-	0.6	-	-	
80b	Paint Storage	-	2.1	-	-	
80c	" "	-	2.1	-	-	
80d	" "	-	2.1	-	-	
80e	" "	-	2.1	-	-	
80f	" "	-	2.1	-	-	
80g	" "	-	2.1	-	-	
81	Subway Construction	185.0	-	-	-	
	Total Built Up Area		2562			
	" Plant Area		5730	JTG Plan		
	% Built Up Area		45%	" "		

PIC - S - Report #3

(PIC-SX10)

Target - 90.20-1729 Aichi A/C Works - Eitoku Plant

Location: Nagoya City Waterfront

Importance to PI Evaluation:

FA Made by JTG (Enclosed)

BDA Made by 20th AF

This plant has been thoroughly investigated by the #2 Team of the A/C Section, by the #5 Team of the Physical Damage Section, and by Major Brown, Photo Interpreter.

Because Maj. Brown has prepared a detailed study of this plant that includes a scale check, a functional analysis, a structural analysis, and a bomb damage assessment, no further study is required.

Information taken from a provisional FA and DA prepared by the Japanese is enclosed.

Photographs have been taken of this target by A/C Team #2 and by PD Team #5 and are available in USSBS negative files.

Requests for additional information on Target 1729 should be addressed to:

1. Maj. Brown - PI member of PD Team #5
2. Maj. Burnett - Mil. Head of PD Team #5
3. Mr. Johnson - Civilian leader of PD Group studying 1729
4. Maj. Walker - Mil. Head of A/C Team #2.

Peter M. Keir

AREA INTERPRETER - NAGOYA

1729 (cont)

Bldg No.	JTG Reported Function	Actual Function
47.	Bldg. under construction	—
48	Generator Bldg.	Transformer Station
49.	Boiler House	Boiler House
50.	Machine shop & small parts fabrication	Parts storehouse
51.	Sub-assembly	mfg. light alloy parts
52.	storage	stores for govt issue items. (parts)
53.	Unidentified	
54	"	
55.	"	
56	Sub-assembly & paint shop	Wood work
57.	Major & Final Assembly	Assembling Quonset
58	Storage	Mixed Stores
59	"	—
60	Unidentified	office
61	Prob. Storage or office	Stores
62.	stores	"
63	"	"
64	—	—
65.	Prob. Stge. or office	~~Storage~~ Locker room
66.	Probable shop	Air Raid Precaution Dep't.
67.	storage	Shop
68	Bldg. under. const.	Air Raid precaution dep't.
69	Admin. office	"
70	"	
71	"	Tech Dep't. Office - Tech Dep't
72	"	Tech Dep't. Laboratory

b/l No	JTG Reported Function	Actual Function
73	Unidentified	—
74	office	office
75	"	"
76	Major + sub assembly	Mfg. parts of expl. devices
77	Final assembly	Final assembly of explosives
78	Unidentified	Stores
79	"	"
80	Stores	Stores

AICHI EITOKU — 1729

(Total floor area Nov. 1944
295,612 m²

Bldg. No.	Reported JTG Function	Jap. Report of Actual Function
(1)	Rec. Stge & small parts Fabrication	Stge
(2)	"	
(3)	"	
(4)	"	No. 2 Misc. Stores
(5)	"	Stores
(6)	"	Pipe Yd.
(7)	"	} Stores
(8)	"	
(9)	"	} offices
(10)	"	
(11)	"	No. 17 shop - forging
(12)	"	office
(13)	"	"
(14)	"	—
(15)	"	Air compressor shop
(16)	"	No. 16 Shop - casting
(17)	"	—
(18)	"	office
(19)	"	Stores
(20)	"	No. 15 shop - heat treatment
(21)	"	No. 2 stores.

(over)

Dlg No	JTG Reported Function	Actual Function
22	Sub-Assembly	Mfg. wing spars
23	Major + Final Assembly	Under Construct.
24	Stores	Room
25 a+b	Storage	Shop - heat treatment
26	Small shop	Shop
27	Stores	—
28	Unidentified	Inspection of parts from dispersed plants.
29	Stores	Stores
30	"	"
31	"	"
32	"	"
33	Rec. + Prob. Heat Treatment	Stores
34	Rec. office	office
35.	Metal shaping, cutting + small parts fabrication	Mfg. machined parts
36.	"	
	Drop hammer press shop	Mfg. machined parts
37.	Sub-assembly	Sub-assembly
38.	"	Wing assembly of "Suisei"
39.	Major + Final assembly	Final assembly "Suisei"
40.	Unidentified	Flying dept.
41.	Post assembly	Airplane Hangar
42.	"	Airplane hangar
43	Unidentified Sub Assoc. with #42	office
44	Unidentified	—
45.	"	—
46	Probable school	office

TARGET NO. 90.20-1729 NAME AICHI AIRCRAFT WORKS, EITOKU PLANT

DATE 7 Mar 45 P/4 COMPLETED

APPROX. COORD. 35°05'N-136°51'E PHOTO DATE 19 Jan 45

SCALE 1:6,000

F/A NO. 71

SORTIE, PRINT NOS. 3PR/5M18-2:70

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C.F.L. 743.903

U. S. CONFIDENTIAL
(British Confidential)

PHOTO INTELLIGENCE SECTION
EVALUATION BRANCH
PHOTOGRAPHIC DIVISION
AC/AS, INTELLIGENCE

206

Mipi 5T.186

FUNCTIONAL ANALYSIS REPORT NO. F/A-71
Date 28 February 1945

TARGET NO: 90.20-1729

NAME OF TARGET: AICHI AIRCRAFT WORKS, EITOKU PLANT

LOCATION: NAGOYA CITY, JAPAN COORDINATES: 35°05'N 136°51'E

PHOTOGRAPHY:	Date	Mission	Print Nos.
	19 JAN 45	3PR/5M18	3L-134, 135
	19 JAN 45	3PR/5M18	2-70, 71

1. This report has been prepared from a study of aerial photographs and a consideration of evaluated ground information supplied by the Joint Target Group.

2. FUNCTION:

The EITOKU PLANT, AICHI AIRCRAFT WORKS, is reported to be the largest of the AICHI plants. The plant is reported to be making JUDY and GRACE, probably PAUL and DENKO, and possibly VAL. The plant has four major and final assembly sections, which strongly suggests that at least four plane types are made here. However, seven aircraft believed to be JUDYS, are the only aircraft identified.

3. LOCATION:

The plant, roughly rectangular, is located in the extreme S.W. part of NAGOYA CITY. It is bordered on the West and South by the SHONAI RIVER, and on the S.E. by a canalized portion of the NAGOYA HARBOR.

The NAGOYA AIRPORT lies immediately South.

4. SERVICES:

The plant is serviced by the SHONAI RIVER on the West, the NAGOYA HARBOR on the S.E., and a main road which borders the east boundary.

5. BUILDING IDENTIFICATION:

1 thru 21.	Receiving storage, and small parts fabrication
22	Sub-assembly
23	Major and final assembly
24	Probable storage
25a & b	Storage
26	Small shop
27	Storage
28	Unidentified
29-30-31	Probable storage
32	Storage
33	Receiving and probable heat treatment
34	Receiving office
35	Metal shaping, cutting, and small parts fabrication
36a	Metal shaping, cutting, and small parts fabrication
b	Drop hammer and press shop
37 & 38	Sub-assembly
39	Major and final assembly
40	Unidentified

I-20
Interpon Two
OP16-FE
ComPhibFor Pac
CincPac, CPH
CincPac, Adv.

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41 & 42	Post-assembly
43	Unidentified but associated with #42
44	Unidentified
45	Unidentified
46	Probable school
47	Building under construction
48	Generator building
49	Boiler house
50	Machine shop & small parts fabrication
51	Sub-assembly
52	Storage
53-55	Unidentified
56	Sub-assembly and paint shop
57	Major and final assembly
58	Storage
59	Storage
60	Unidentified
61	Probable storage or office
62-63	Storage
64	Probable storage or office
65	Probable shop
66	Storage
67	Building under construction
68 thru 72	Administration offices
73	Unidentified
74-75	Offices
76	Major and sub-assembly
77	Final assembly
78	Unidentified
79	Unidentified
80	Storage

6. **ACTIVITY:**

Two buildings are believed to be under construction, which indicates the plant is expanding.

Three small vessels are tied up along side the plant and truck activity is noted within the target area.

ENCL: C.F.L. 743.903

INTERPRETED BY:

T.F. VOILES
Lt. (j.g.) USNR

JTG CONSULTANT

GEORGE SHASKAN
Ens. USNR

APPROVED BY:

LEWIS E. STEVENS
Major, Air Corps
Chief, Photo Intelligence Section
Evaluation Br., Photographic Division
Office of Asst. Chief of Air Staff
Intelligence

3/12
3/12

- HALF DESTROYED

1. Miles

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C. I. U.
XXI BOMBER COMMAND
APO 234, c/o POSTMASTER
SAN FRANCISCO, CALIFORNIA

(Combined PI Sections: 3rd Photo Recon Squadron and 35th Photo Tech Unit)

14 June 1945

DAMAGE ASSESSMENT REPORT NO. 89

90.20-198 AICHI A/C WORKS, ATSUTA PLANT
90.20-2010 AICHI A/C ENGINE WORKS, NAGOYA PLANT
35/07/24N - 136/54/00E

Mission No.: 3PR5M 273 Target Area: Nagoya (90.20)

Date Flown: 10 June 1945 Altitude: 30,000'

SUMMARY

This report assesses damage to Targets 198 and 2010 resulting from XXI Bom Com Mission 193 of 9 June 1945.

Both targets were heavily damaged. Target 198 received the greater amount with 95.7% of the total roof area damaged or destroyed (31% destroyed or structural damage; 64.7% superficial damage). Only one medium sized and 4 small buildings, distributed throughout the plant area, were left undamaged.

Target 2010 was damaged to the extent of 53% of its total roof area. The damage was concentrated in the eastern section of the plant where every building was heavily damaged or destroyed. Total damage to date to this plant amounts to 65% of its total roof area.

STATISTICAL SUMMARY OF DAMAGE

TARGET 198

Damage from current strike:	Square feet of roof	Percent of original roof area
Destroyed	291,300	24.7
Structural damage	72,200	6.1
Superficial		
1. Gutted	681,500	57.7
2. Minor roof damage	85,800	7.2
Total damage	1,130,800	95.7

Total roof area: 1,188,000 sq. ft. (this total supersedes that given in CIU Industrial Report 9 - 1,192,000 sq. ft.)

TARGET 2010

Destroyed	69,700	15.0
Structural damage	12,000	2.6
Superficial		
1. Gutted	67,000	14.4
2. Minor	101,000	21.6
Total damage	249,700	53.6

Total roof area: 467,500 sq. ft. (Ref a)

Damage Assessment Report No. 89, cont'd,

TARGET 2010

Total damage to date*

	Square feet of roof	Percent of original roof area
Destroyed	110,600	23.7
Structural damage	12,000	2.6
Superficial		
1. Gutted	79,000	16.9
2. Minor roof damage	101,000	21.6
Total damage	302,600	64.3

*All old damage has not been reported previously.

ITEMIZATION OF DAMAGE
(see following page)

Damage Assessment Report No. 39, cont'd.

TARGET 2010

Total damage to date*

	Square feet of roof	Percent of original roof area
Destroyed	110,600	23.7
Structural damage	12,000	2.6
Superficial		
1. Gutted	79,000	16.9
2. Minor roof damage	101,000	21.6
Total damage	302,600	64.3

*All old damage has not been reported previously.

ITEMIZATION OF DAMAGE
(see following page)

ITEMIZATION OF DAMAGE

D/A Report No. 89, cont'd.

Number Ref. a	Roof area Ref a.	DAMAGE IN SQUARE FEET Destroyed	SUPERFICIAL Structural	SUPERFICIAL Gutted	SUPERFICIAL Minor	Total	Percent of roof	Function of building; comment
						TARGET 198		
1a	7,000	7,000				7,000	100	Probable Instrument assembly
1b	7,500				7,500	7,500	100	" " "
1c	19,000				19,000	19,000	100	" " "
2a	18,000				18,000	18,000	100	Unidentified
2b	25,000	12,000	13,000			25,000	100	"
2c	16,000		4,000	12,000		16,000	100	"
2d	4,000	4,000				4,000	100	"
3a	2,400	2,400				2,400	100	
3b	2,600	2,600				2,600	100	Transformer house
4	13,000			13,000		13,000	100	Offices
5	13,000		3,000			3,000	23	"
6a	7,800	7,800				7,800	100	Unidentified
6b	8,400	8,400				8,400	100	"
6c	3,500	3,500				3,500	100	"
7a	44,000	20,000		24,000		44,000	100	"
7b	46,000			12,000	34,000	46,000	100	"
7c	1,400			1,400		1,400	100	"
8	4,000	4,000				4,000	100	"
10a	70,000			70,000		70,000	100	Probable fuselage assembly
10b	194,000	47,000		147,000		194,000	100	" " "
10c	4,000			4,000		4,000	100	" " "
10d	11,000	11,000				11,000	100	
10e								Removed prior to strike
10f	7,500	7,500				7,500	100	Probable fuselage assembly
10g	43,000	3,000		40,000		43,000	100	" " "
10h	67,000	17,000		50,000		67,000	100	
11	10,000	2,500				2,500	25	Unidentified
12a	2,700	2,700				2,700	100	"
12b	2,700	2,700				2,700	100	"
13a	8,400	8,400				8,400	100	"
13b	2,200	2,200				2,200	100	"
14	60,000	30,000		30,000		60,000	100	Machine shop
15a	15,000	15,000				15,000	100	" "

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Number Ref a	Roof Area Ref a	AREA IN SQUARE FEET Destroyed	Structural	SUPERFICIAL Gutted	Minor	Total	Percent of roof	Function of building; comment
15b	35,000		15,000	20,000		35,000	100	Machine shop
15c	1,500		1,500			1,500	100	Unidentified
16a	32,500		32,500			32,500	100	"
16b	3,200		3,200			3,200	100	"
18b	9,600	9,600				9,600	100	Probable machine shop
18c	50,000	5,000		45,000		50,000	100	" " "
19a	12,000			8,000	4,000	12,000	100	" " "
19b	10,000			10,000		10,000	100	Probable heat treatment shop
19c	9,600			9,600		9,600	100	
19d	3,500			3,500		3,500	100	Unidentified
21	1,400	1,400				1,400	100	"
22	1,700	1,700				1,700	100	"
24-29	25,300	25,300				25,300	100	" (6 small buildings)
30	3,300				3,300	3,300	100	"
31a	27,000			27,000		27,000	100	Torpedo testing
31b	7,600	7,600				7,600	100	Unidentified
31c	1,400	1,400				1,400	100	"
32a	21,000			21,000		21,000	100	Iron foundry
32b	18,000			18,000		18,000	100	" "
33	4,300			3,000		3,000	70	Unidentified
35a	17,000			17,000		17,000	100	"
35b	25,000			25,000		25,000	100	"
36	30,000			30,000		30,000	100	"
37	16,000			16,000		16,000	100	"
38B	25,000			25,000		25,000	100	"
39-43	18,600	18,600				18,600	100	" (5 small buildings)
	TOTALS:	291,300	72,200	681,500	85,800	1,130,800		

~~365~~
363,500

85,800
767,300

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Number Ref a	Roof area Ref a	AREA IN SQUARE FEET SUPERFICIAL Destroyed	Structural	Gutted	Minor	Total	Percent of roof	Function of building; comment
				TARGET 2010				
1a	8,200	8,200				8,200	100	Offices and Cafeteria
1b	8,300	8,300				8,300	100	" " "
1c	1,300	1,300				1,300	100	" " "
2	6,200	6,200				6,200	100	Offices
3a	4,500	4,500				4,500	100	Parts factory & assembly
3b	112,000	25,000	10,000	37,000	40,000	112,000	100	" " " "
3d	36,000				18,000	18,000	50	" " " "
3e	10,000				10,000	10,000	100	" " " "
3f	7,000				7,000	7,000	100	" " " "
3g	7,000				1,000	1,000	15	" " " "
4a	7,000				7,000	7,000	100	Probable parts factory
4b	7,000				7,000	7,000	100	" " "
6a	20,000			20,000		20,000	100	Foundry & Storage
6b	20,000	8,000	2,000	10,000		20,000	100	" "
7a	6,500	6,500				6,500	100	Storage
7c	1,700	1,700				1,700	100	"
8	4,200				4,200	4,200	100	
9	7,000				7,000	7,000	100	
*18	49,000			12,000				Previously damaged and unreported (Not included in present total but included in total damage to date.)
*20	4,500	4,500						
TOTALS:		69,700	12,000	67,000	101,200	249,900		

67.00
168.20

References: a. CIU Industrial Report 9
b. CIU Damage Assessment Report 32

Photography: Pre-strike: 3PR5M222-2:37-39
Post-strike: 3PR5M278-3L:98-100

Inclosures: 1. Annotated enlargement showing damage
2. Post-strike print 3PR5M278-3L:99

DISTRIBUTION: "B"

Approved: E. W. Webster 1st Lt, AC
for HAMILTON D. DARBY
MAJOR, AC

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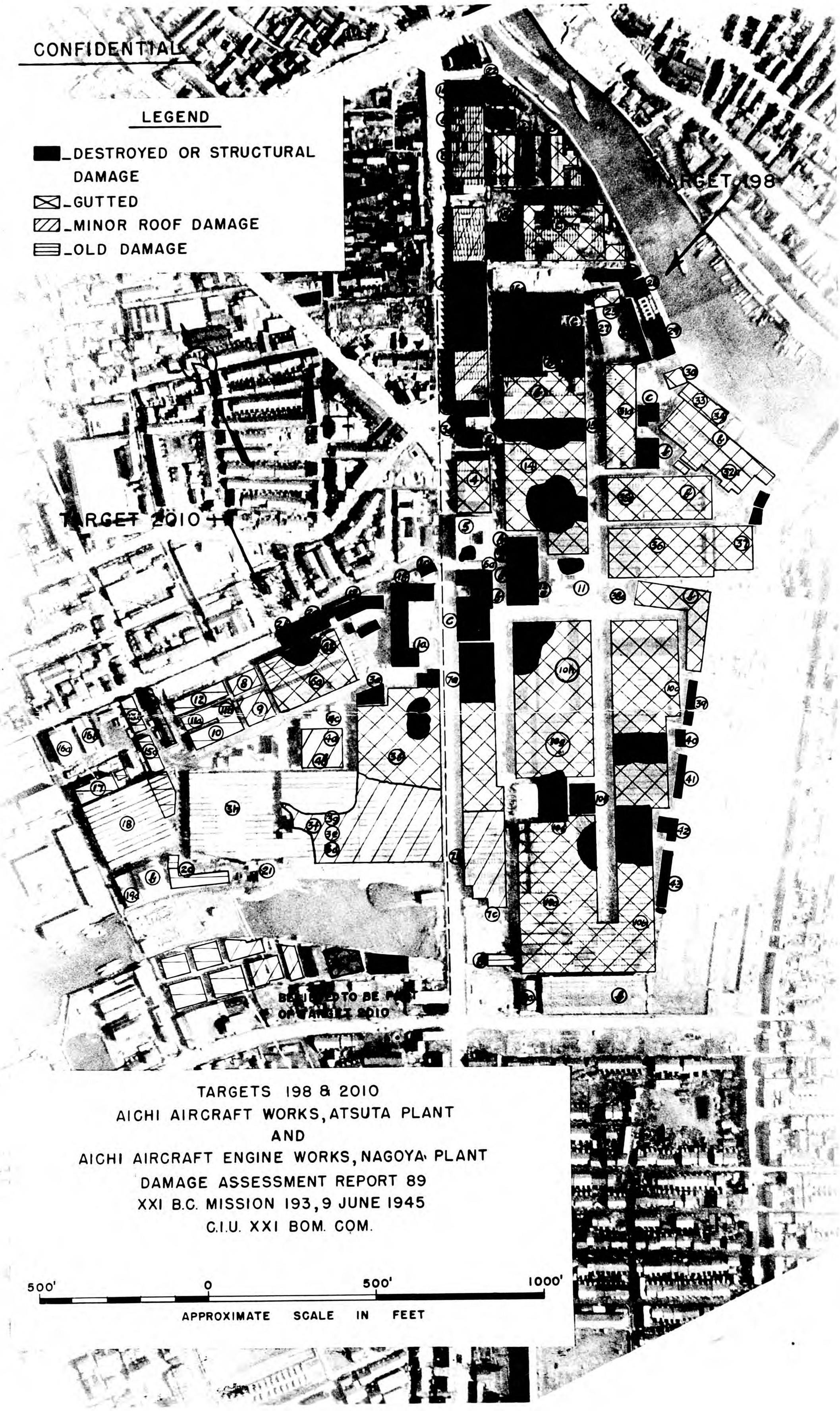

TARGETS 198 & 2010
AICHI AIRCRAFT WORKS, ATSUTA PLANT
AND
AICHI AIRCRAFT ENGINE WORKS, NAGOYA PLANT
DAMAGE ASSESSMENT REPORT 89
XXI B.C. MISSION 193, 9 JUNE 1945
C.I.U. XXI BOM. COM.

3FEBM218-3L-44

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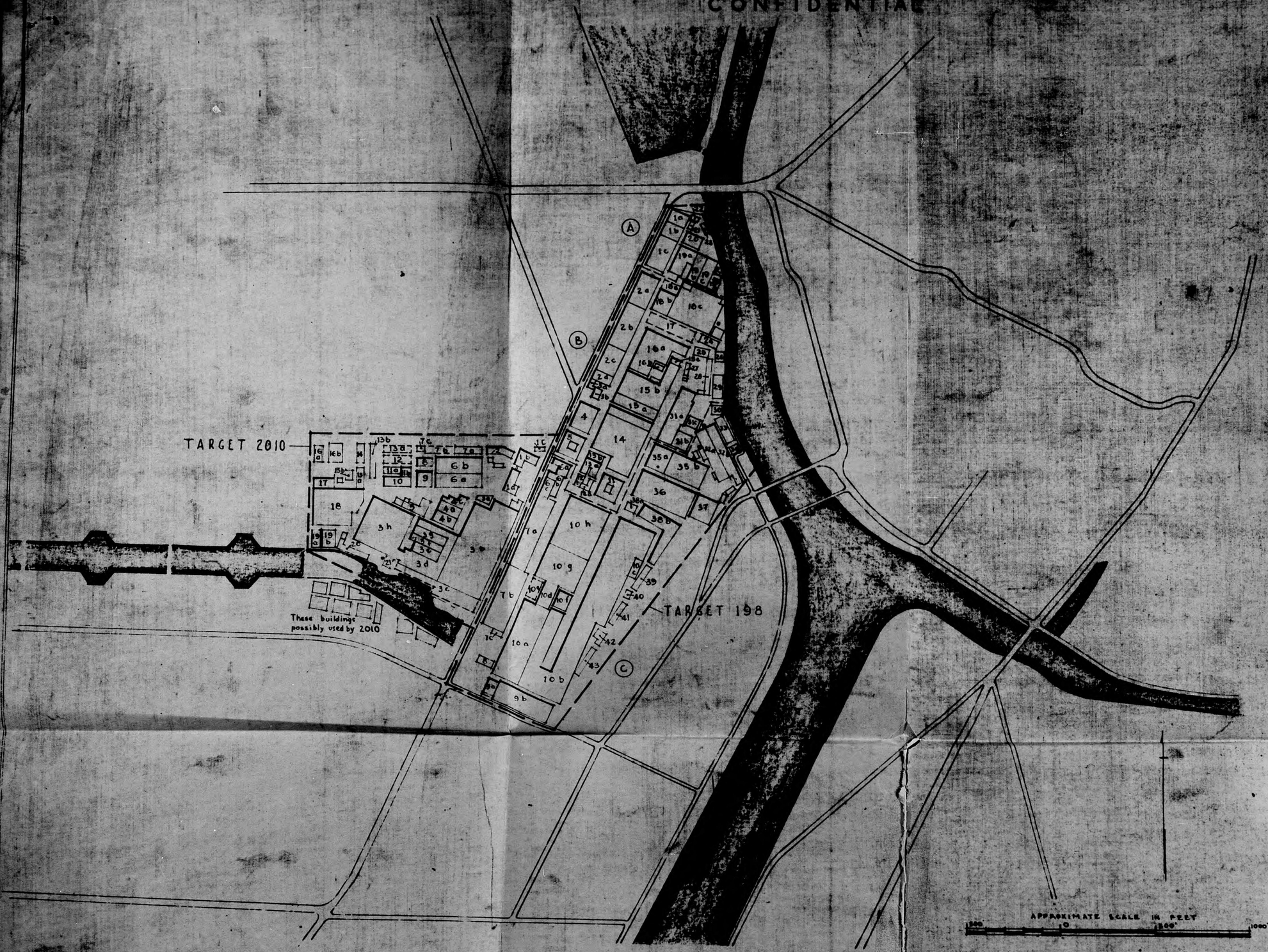

KEY

TO ACCOMPANY INDUSTRIAL REPORT NO. [illegible] CIU. XXI [illegible]

TARGET 198

3a, b, c — PROBABLE INSTRUMENT ASSEMBLY
4 — TRANSFORMER HOUSE
5 — OFFICES
6 — OFFICES
7a, b, c
8
9a, b
10a, b, c — PROBABLE FUSELAGE ASSEMBLY
11
12a, b
13a, b
14 — MACHINE SHOP FOR ORDNANCE EQUIPMENT
15a — PROBABLE MACHINE SHOP
15b — PROBABLE HEAT TREATMENT
16
17
18
19a, b
20
21
22
23
24
25
26
27
28
29
30
31a — TORPEDO TESTING
31b, c
32a — IRON FOUNDRY
32b — STEEL FOUNDRY
33
34
35a, b
35c — PROBABLE MACHINE SHOPS
35d — MACHINE SHOP
36 — PROBABLE HEAT TREATMENT
37
38a
38b
39
40
41
42 — PROBABLE
43 — MACHINE SHOPS

TARGET 2010

1a-b, 1c — OFFICES AND CAFETERIA
2 — OFFICES
3a, 3b, 3c, 3d-h — PARTS FACTORY AND ASSEMBLY
4a-c — PROBABLE PARTS FACTORY
5 — PROBABLE PARTS FACTORY
6a, 6b — FOUNDRY AND STORAGE
7a, 7b, 7c — STORAGE
8
9
10a, 10b — PROBABLE STORAGE
11a
11b
12
13a
13b
14
15a, 15b — PROBABLE [illegible]
16a-b — POSSIBLE [illegible]
17 — AMMO [illegible]
18
19a
19b
20
21 — BOILER [illegible]

TARGET 2010 NAGOYA PLANT AICHI AIRCRAFT ENGINE WORKS

TARGET 198 ATSUTA PLANT AICHI AIRCRAFT WORKS

NAGOYA AREA L.A.T. 35° 07' 24" N

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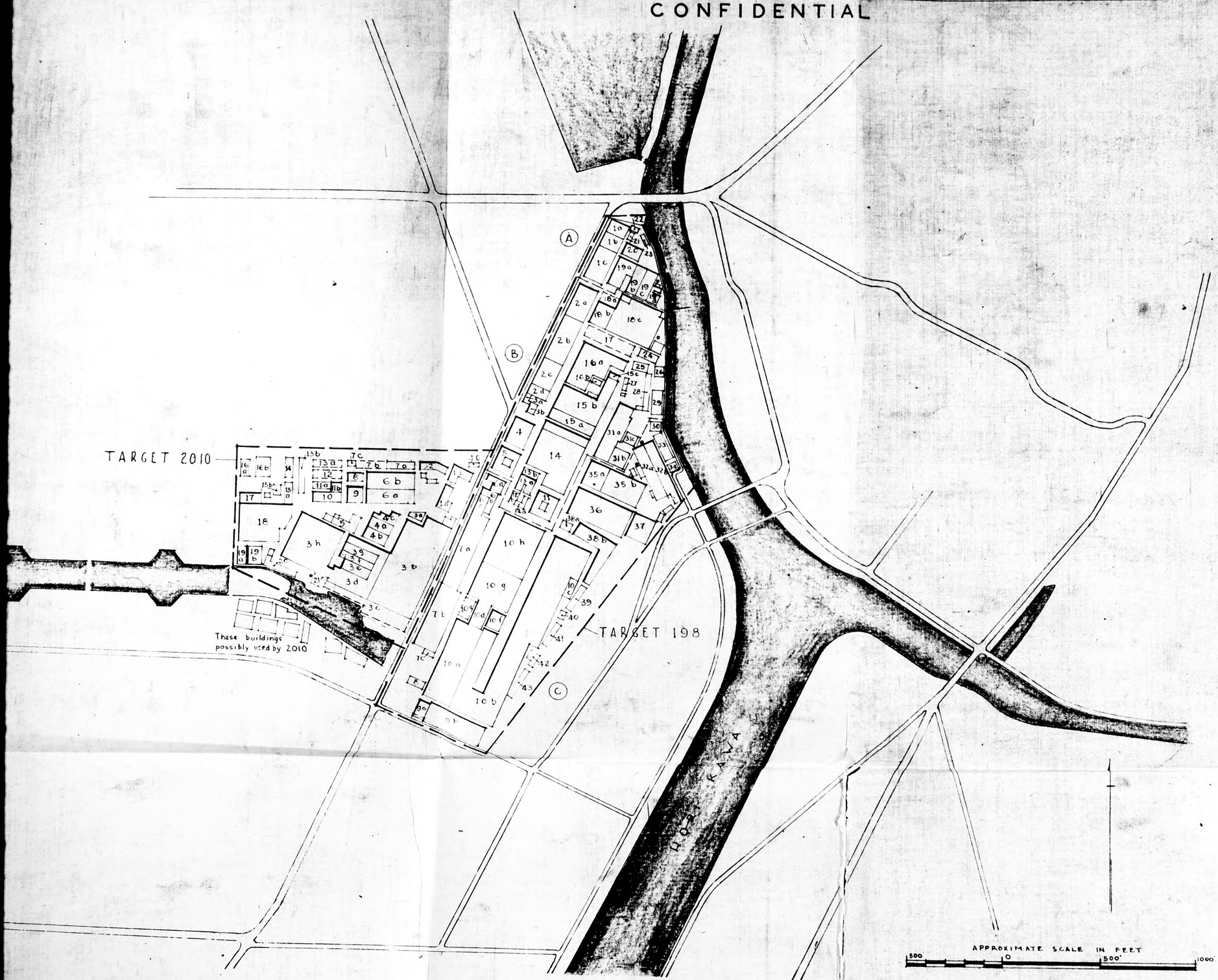


KEY

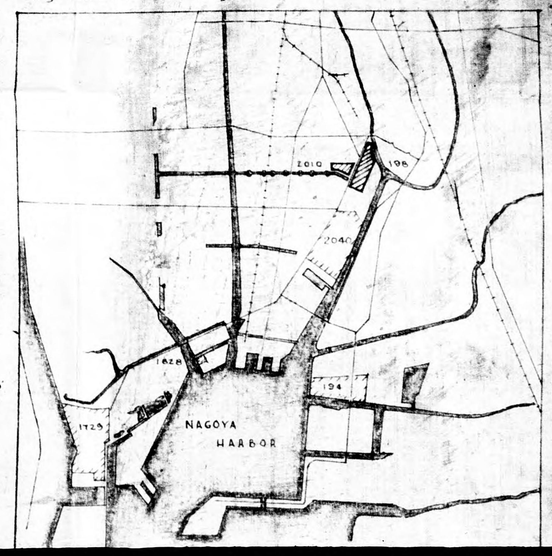
TO ACCOMPANY INDUSTRIAL REPORT NO. 9 CIU. XXI B.C.

TARGET 198

1a	PROBABLE	14	MACHINE SHOP	35b	
b	INSTRUMENT	15a	FOR ORDNANCE	36	
c	ASSEMBLY	b	EQUIPMENT	37	
2a		c		38a	
b		16a		b	
c		b		39	
b		17		40	
3a		18a		41	
b	TRANSFORMER HOUSE	b	PROBABLE	42	
4	OFFICES	c	MACHINE SHOPS	43	
5	OFFICES	19a	MACHINE SHOP		
6a		b	PROBABLE HEAT		
b		c	TREATMENT		
c		d			
7a		20			
b		21			
c		22			
8		23			
9a		24			
b		25			
10a		26			
b		27			
c	PROBABLE	28			
b	FUSELAGE	29			
e	ASSEMBLY	30			
f		31a	TORPEDO TESTING		
g		b			
h		c			
11		32a	IRON FOUNDRY		
12a		32b	IRON FOUNDRY		
b		33			
13a		34			
13b		35a			

TARGET 2010

1a-b	OFFICES AND	7a		14	
1c	CAFETERIA	7b	STORAGE	15a	PROBABLE STORAGE
2	OFFICES	7c		15b	
3a		8		16a-b	POSSIBLE 13MM
3b	PARTS FACTORY	9		17	AMMO FACTORY
3c	AND ASSEMBLY	10		18	
3d-h		11a		19a	
4a-c	PROBABLE PARTS FACTORY	11b	PROBABLE	19b	
5	PROBABLE PARTS FACTORY	12	STORAGE	20	
6a	FOUNDRY AND	13a		21	BOILER HOUSE
6b	STORAGE	13b			



RGET 2010 NAGOYA PLANT
CHI AIRCRAFT ENGINE WORKS

TARGET 198 ATSUTA PLANT
AICHI AIRCRAFT WORKS

TARGET 2010

TARGET 198

These buildings possibly used by 2010

HORI-KAWA

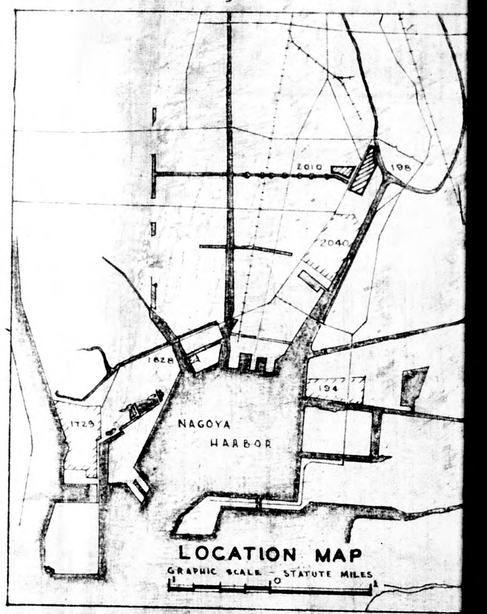
APPROXIMATE SCALE IN FEET
500 0 500' 1000

1a-b	OFFICES AND CAFETERIA	
1c		
2	OFFICES	
3a	PARTS FACTORY AND ASSEMBLY	
3b		
3c		
3d-h		
4a-c	PROBABLE PARTS FACTORY	
5	PROBABLE PARTS FACTORY	
6a	FOUNDRY AND STORAGE	
6b		
7a	STORAGE	
7b		
7c		
8		
9a		
b		
c		
10a	PROBABLE FUSELAGE ASSEMBLY	
b		
c		
d		
11		
12a		
b		
13a		
13b		

c	TREATMENT	
d		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31a	TORPEDO TESTING	
b		
c		
32a	IRON FOUNDRY	
32b	IRON FOUNDRY	
33		
34		
35a		

TARGET 2010

1a-b	OFFICES AND CAFETERIA	7a	STORAGE	14	PROBA
1c		7b		15a	
2	OFFICES	7c		15b	
3a	PARTS FACTORY AND ASSEMBLY	8		16a-b	POSSIB
3b		9		17	AMMO
3c		10		18	
3d-h		11a		19a	
4a-c	PROBABLE PARTS FACTORY	11b	PROBABLE STORAGE	19b	
5	PROBABLE PARTS FACTORY	12		20	
6a	FOUNDRY AND STORAGE	13a		21	BOILER
6b		13b			



LOCATION MAP
GRAPHIC SCALE STATUTE MILES

TARGET 2010 NAGOYA PLANT
AICHI AIRCRAFT ENGINE WORKS
NAGOYA AREA

LAT. 35° 07' 24" N
LONG. 136° 54' 05" E

TARGET 198 ATSUTA PLANT
AICHI AIRCRAFT WORKS
NAGOYA AREA

LAT. 35° 07' 24" N
LONG. 136° 54' 10" E

CONFIDENTIAL

TARGET 2010

These buildings possibly used by 2010

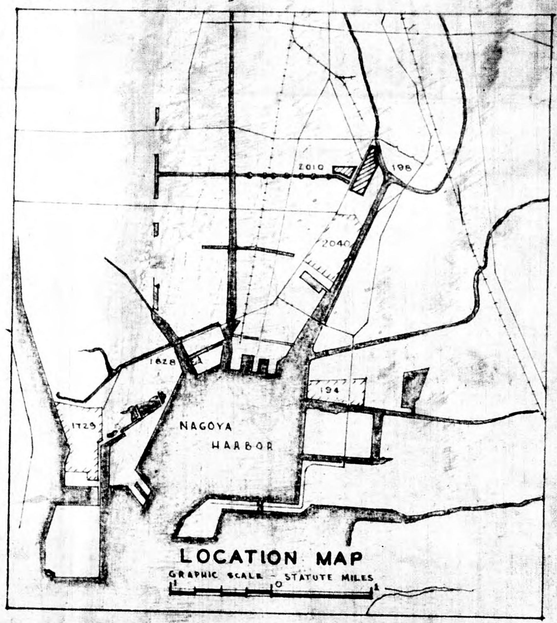
TARGET 198

HORIKAWA

APPROXIMATE SCALE IN FEET
500 0 500' 1000'

1a, b	OFFICES AND CAFETERIA	
1c		
2	OFFICES	
3a, b, c, d	PARTS FACTORY AND ASSEMBLY	
4a, c	PROBABLE PARTS FACTORY	
5	PROBABLE PARTS FACTORY	
6a, b	FOUNDRY AND STORAGE	
7a, b, c	STORAGE	
8		
9		
10a, b, c	PROBABLE FUSELAGE ASSEMBLY	
11		
12a, b		
13a, b		
14		
15a, b	PROBABLE STORAGE	
16a-b	POSSIBLE 13MM	
17	13MM. FACTORY	
18		
19a, b	PROBABLE STORAGE	
20		
21	BOILER HOUSE	
22		
23		
24		
25		
26		
27		
28		
29		
30		
31a	TORPEDO TESTING	
31b, c	TREATMENT	
32a	IRON FOUNDRY	
32b	IRON FOUNDRY	
33		
34		
35a		

TARGET 2010



TARGET 2010 NAGOYA PLANT
AICHI AIRCRAFT ENGINE WORKS
NAGOYA AREA

LAT. 35° 07' 24" N
LONG. 136° 54' 05" E

TARGET 198 ATSUTA PLANT
AICHI AIRCRAFT WORKS
NAGOYA AREA

LAT. 35° 07' 24" N
LONG. 136° 54' 10" E

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C. I. U.
XXI BOMBER COMMAND
APO 234, c/o POSTMASTER
SAN FRANCISCO, CALIFORNIA.

(Combined Photo Interpretation Sections:
3rd Photo Reconnaissance Squadron
and
35th Photo Technical Unit)

27 March 1945

INDUSTRIAL REPORT NO. 9

TARGET 198
ATSUTA PLANT, AICHI AIRCRAFT WORKS
and
TARGET 2010
NAGOYA PLANT, AICHI AIRCRAFT ENGINE WORKS

(35/07/24 N--136/54/00 E)

References:
a. AAF Objective Folder 90.20, 6 July 1944.
b. Map Nagoya, Southeast Aichi Prefecture, Honshu, Japan, scale 1:12,500, AMS.
c. Target Information Sheet, AAF Target No. 90.20-2010, 10 February, 1945, Joint Target Group, Washington, D. C.
d. Target Information Sheet, AAF Target No. 90.20-198, 11 September 1944, Joint Target Group, Washington, D. C.
e. The Aircraft Industry, Photo Industrial Study No. 5, United States Armed Forces, December 1944.
f. CINCPAC-CINCPOA, Special Advance Report, No. A1-45.
g. Joint Target Group Air Target System Folder, Japanese Aircraft Sheet No. ATSF/AC/D, Page 1; Washington, D. C., 12 January 1945.

SUMMARY

Target 2010 is reported producing aircraft engines and 13mm ammunition. Target 198 produces aircraft parts and precision ordnance equipment.

Both Aichi plants are in Nagoya City. They are 2.5 miles S of the center of the city, 4 miles S of Nagoya Castle and 2 miles NNE of Nagoya Harbor piers (Target 251).

The two branches of the Hori River meet at a point about 700' E of Target 198 and about 1600' E of Target 2010. A canal bearing E-W terminates at the SW corner of Target 2010. The old section of this canal (along the S side of Target 2010) is partly filled in.

A main NE-SW highway separates the two plants.

Total ground area, Target 198.....2,170,000 sq. ft.
Total built-up area, Target 198....1,192,000 sq. ft.
Ground area covered by buildings...55 percent.

Total ground area, Target 2010.....770,000 sq. ft.
Total built-up area, Target 2010...467,500 sq. ft.
Ground area covered by buildings...60.5 percent.

Industrial Report No. 9, Cont'd.

(Note: A detailed study of all building areas, heights and roof types is appended to this report.

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TARGET 198: The Atsuta plant formerly produced aircraft engines, airframes, propellors and instruments for VAL and KATE types. Now the plant is reported to be concentrating its production on aircraft parts and precision ordnance equipment such as mines and torpedoes.

The plant proper covers approximately 50 acres and is compactly built up. Expansion was under way as early as 1936 and in 1941 a new aircraft engine factory (Target 2010) was reported adjoining the old plant compound on the W. Most of the buildings are of modern steel-frame, sawtooth-roof construction. The roofs are covered with slate-asbestos composition. The floors are concrete and the walls are largely glass (reference f).

The machine shop is probably located in building 18. An iron foundry is in buildings 32 A and 32 B, both of which have monitor roofs and 12 short metal stacks. Two stacks adjoin buildings 32 A and 32 B. The stack on the N is 110' x 12' x 6'; the stack W of building 32 A is 100' x 12' x 8'.

The plant may be considered to be divided in three sections: instruments, ordnance, aircraft parts and assembly (reference f). The areas occupied by the three sections are shown on the accompanying plant plan as A, B and C, respectively.

A POW who worked in building 14 reports that in 1940 this building housed production of precision ordnance equipment, mines, torpedoes. The pond S of building 25 and N of building 31 A is used for torpedo testing.

The plant is not now engaged in final assembly of aircraft. Sub-assembly is completed and parts are then shipped by truck to final assembly plants. POW indicates that the manufacture of propellors takes place in the Sumitomo Duralumin Mill (Target 2040) just S of Target 198 (reference f).

Target 198 has undergone minor building changes since 23 November 1944, the date of first photo coverage. The following table shows in chronological order the changes observed and the dates of photo coverage:

3PR4M 17;	23 November 1944.....	First cover.
3PR5M 13;	14 January 1945.....	13,500 sq. ft. removed.
3PR5M 73;	9 March 1945.....	9,700 sq. ft. removed.
3PR5M 79;	12 March 1945.....	5,400 sq. ft. removed.
3PR5M 80,	13 March 1945.....	no change.

Total building area removed: 28,600 square feet.
(Print 3PR5M 80--3R:14 is attached to show buildings removed.)

CAMOUFLAGE: Most of the buildings in Target 198 are disruptively painted.

.....

TARGET 2010: This plant is a new aircraft engine factory reported to have started production in 1941. It produces the ATSUTA engine (1200 h.p., 12 cylinder, in-line) used in Navy single-engine dive-bomber JUDY and the new SEIRAN. Mines, torpedoes and other ordnance are also reported produced here (reference c).

The plant's boiler house is building 21, which has a monitor roof and one stack 120' x 20' x 8'.

Industrial Report No. 9, Cont'd.

There is no photographic evidence that engine test cells (for aircraft engines) are present. It is believed that the engines are carried by truck to be tested in the company's Tsukiji plant, Target 1828 (see M-4 in reference a; see also reference c).

Target 1828 is 2.5 miles SSW in the Nagoya harbor area. The plant is in an area of about 190,000 square feet. The built-up portion is mainly test cells and small single-ridge roof buildings. There are six L-type test cells in building 1. Two U-type test cells are in building 2 (58' x 58') which has exhaust openings 50' in height. An adjoining structure, building 3 (190' x 95') has four unconventional type test cells each approximately 38' in height. In the same building are two more U-type test cells with exhaust openings approximately 65' in height. It is estimated that these test cells have a combined capacity of 180 engines a month (reference g).

Several buildings were damaged during the Nagoya City strike of 19 March 1945. Damage assessment photo coverage is limited to photography of small scale (1:60,000) which does not permit detailed assessment.

Target 2010 has undergone minor building changes since 23 November 1944, the date of first photo coverage. The following table shows in chronological order the changes observed and the dates of photo coverage:

3PR4M 17, 23 November 1944.....first cover.
3PR5M 13; 14 January 1945.....12,500 sq. ft. removed.
3PR5M 73, 9 March 1945.....30,500 sq. ft. removed.
3PR5M 79; 12 March 1945.....no change.
3PR5M 80, 13 March 1945.....no change.

Total building area removed: 43,000 square feet.
(Print 3PR5M 80--3R:14 is attached to show buildings removed.)

CAMOUFLAGE: With the exception of a few small buildings, all structures have disruptive painting.

DEFENSES: There are no defenses within a half-mile radius of the plant.

APPENDIX
TARGET 198

Building	Dimensions	Area in Sq.ft.	Height	Remarks
1 A	100' x 70'	7,000	15' to ridge, 8' to eaves.	Double-ridge roo
1 B	100' x 75'	7,500	17' to ridge, 12' to eaves.	Sawtooth roof.
1 C	100' x 190'	19,000	22' to ridge, 17' to eaves.	Sawtooth roof.
2 A	100' x 180'	18,000	22' to ridge, 15' to eaves.	Sawtooth roof.
2 B	250' x 100'	25,000	32' to ridge, 24' to eaves.	Sawtooth roof.
2 C	100' x 105'	16,000	40' to ridge, 35' to eaves.	Sawtooth roof.
2 D	100' x 44'	4,000	40' to ridge, 30' to eaves.	Single-ridge roo

Industrial Report No. 9, Cont'd.

Building	Dimensions	Area in Sq.Ft.	Height	Remarks
3 A	40' x 60'	2,400	------	Single-ridge roof
3 B	44' x 60'	2,600	------	Single-ridge roof
4	96' x 140'	13,000	30' to ridge, 20' to eaves.	Sawtooth roof.
5	110' x 120'	13,000	47' to edge.	Flat roof.
6 A	35' x 92' 40' x 60'	7,800	32' average.	Ridge roof, 3,000 sq. ft.; flat roo: 2,400 sq. ft.
6 B	40' x 60' 60' x 100'	8,400	------	Single-ridge roof
6 C	100' x 35'	3,500	------	Single-ridge roof
7 A	100' x 440'	44,000	25' to ridge, 17' to eaves.	Sawtooth roof.
7 B	140' x 330'	46,000	25' to ridge, 17' to eaves.	Sawtooth roof.
7 C	60' x 24'	1,400	------	Single-ridge roof
8	40' x 100'	4,000	24' to ridge, 12' to eaves.	Single-ridge roof
9 B	240' x 100'	24,000	------	Sawtooth roof.
9 A	44' x 85'	3,700	24' to ridge, height to eaves unknown.	Single-ridge roof
10 A	160' x 440'	70,000	52' to ridge; 40' to eaves.	Sawtooth roof.
10 B	160' x 400' 100' x 340' 170' x 150' 80' x 430' 200' x 180'	194,000	32' to ridge, 25' to eaves.	Sawtooth roof.
10 C	90' x 45'	4,000	------	Single-ridge roof
10 D	80' x 140'	11,000	------	Single-ridge roof
*10 E	60' x 90'	5,400	------	Building removed.
10 F	100' x 75'	7,500	------	Ridge roof.
10 G	180' x 240'	43,000	37' to ridge; 30' to eaves;	Sawtooth roof.
10 H.	280' x 240'	67,000	37' to ridge; 25' to eaves.	Ridge roof
11	88' x 120'	10,000	40' to edge.	Flat roof.
12 A	68' x 40'	2,700	------	Single-ridge roof

Building	Dimensions	Area in Sq.Ft.	Height	Remarks
12 B	68' x 40'	2,700	------	Single-ridge roof
13 A	40' x 90' 40' x 60' 40' x 60'	8,400	30' to ridge.	Single-ridge roof
13 B	90' x 25'	2,200	------	Single-ridge roof
14	260' x 230'	60,000	30' to ridge, 19' to eaves.	Sawtooth roof.
15 A	260' x 60'	15,000	------	Single-ridge roof
15 B	180' x 60' 260' x 80' 20' x 200'	35,000	------	Multiple-ridge roof.
15 C	550' x 30'	15,000	------	Flat roof.
16 B	56' x 58'	3,200	------	Single-ridge roof
16 A	250' x 60' 100' x 180' 120' x 80'	32,500	------	Sawtooth roof.
*17	260' x 70'	18,000	------	Building removed.
*18 A	80' x 65'	5,200	------	Building removed.
18 B	96' x 100'	9,600	------	Multiple-ridge roof.
18 C	250' x 200'	50,000	------	Sawtooth roof.
19 A	76' x 160'	12,000	------	Monitor roof.
19 B	65' x 160'	10,000	------	Monitor roof.
19 C	60' x 160'	9,600	------	Monitor roof.
19 D	70' x 50'	3,500	------	Sawtooth roof.
20	80' x 64'	5,000	------	Double ridge roof
21	28' x 50'	1,400	------	Single-ridge roof
22	60' x 28'	1,700	------	Single-ridge roof
23	36' x 70'	2,500	------	Monitor roof.
24	40' x 105'	4,500	------	Single-ridge roof
25	85' x 40'	3,400	30' to ridge, 15' to eaves.	Single-ridge roof
26	50' x 60'	3,000	------	Single-ridge roof
27	70' x 20'	1,400	------	Single-ridge roof
28	200' x 30'	6,000	------	Single-ridge roof
29	120' x 60'	7,000	------	Monitor roof.
30	60' x 55'	3,300	------	Single-ridge roof
31 A	85' x 320'	27,000	42' to ridge, 30' to eaves.	Double-ridge roof

Industrial Report No. 9, Cont'd.

Building	Dimensions	Area in Sq.Ft.	Height	Remarks
31 B	80' x 95'	7,600	-----	Sawtooth roof.
31 C	24' x 60'	1,400	-----	Single-ridge roof.
32 A	68' x 310'	21,000	-----	Monitor roof.
32 B	62' x 31'	18,000	-----	Monitor roof.
33	90' x 48'	4,300	-----	Single-ridge roof.
34	50' x 40'	2,000	-----	Single-ridge roof.
35 A	140' x 120'	17,000	45' to ridge, 17' to eaves.	Monitor roof.
35 B	210' x 120'	25,000	-----	Sawtooth roof.
36	320' x 100'	30,000	30' to ridge, 22' to eaves.	Sawtooth roof.
37	120' x 136'	16,000	-----	Sawtooth roof.
38 A	40' x 40'	1,600	-----	Single-ridge roof.
38 B	65' x 220' 190' x 60'	25,000	-----	Sawtooth roof.
39	140' x 32'	4,500	-----	Single-ridge roof.
40	40' x 40'	1,600	-----	Single-ridge roof.
41	180' x 20'	3,000	-----	Single-ridge roof.
42	30' x 40' 20' x 68'	2,500	-----	Single-ridge roof.
43	40' x 170'	7,000	30' to ridge, height to eaves unknown.	Single-ridge roof.

TOTAL ROOF AREA: 1,192,000 square feet

* Not included in total.

TARGET 2010

Building	Dimensions	Area in Sq.Ft.	Height	Remarks
1 A	140' x 48' 48' x 32'	8,200	50' to ridge, 32' to eaves.	Single-ridge roof.
1 B	130' x 48' 44' x 48'	8,300	50' to ridge, 32' to eaves.	Single-ridge roof.
1 C	56' x 24'	1,300	-----	Single-ridge roof.
2	40' x 90' 40' x 65'	6,200	37' to ridge, height to eaves unknown	Single-ridge roof.
3 A	24' x 44' 40' x 88'	4,500	-----	Sawtooth roof.

Industrial Report No. 9, Cont'd.

Building	Dimensions	Area in Sq.Ft.	Height	Remarks
3 B	490' x 250' -(90' x 50')	112,000	-----	Sawtooth roof.
*3 C	480' x 40' 60' x 32'	24,000	-----	Building removed.
3 D	60' x 230' 44' x 760' 220' x 70'	36,000	27' to ridge, 14' to eaves.	Sawtooth roof.
3 E	150' x 70'	10,000	-----	Monitor roof.
3 F	180' x 40'	7,000	-----	Monitor roof.
3 G	180' x 40'	7,000	-----	Monitor roof.
3 H	250' x 250'	63,000	27' to ridge, 14' to eaves.	Sawtooth roof.
4 A	60' x 120'	7,000	35' to ridge; 30' to eaves.	Double-ridge roof.
4 B	60' x 120'	7,000	-----	Single-ridge roof.
4 C	68' x 36' 70' x 28' 28' x 32'	5,300	30' to ridge, height to eaves unknown	Single-ridge roof.
5	80' x 40' 40' x 48' 40' x 28' 32' x 32'	7,200	50' to ridge, 32' to eaves.	Single-ridge roof.
6 A	80' x 250'	20,000	-----	Sawtooth roof.
6 B	80' x 250'	20,000	27' to ridge, height to eaves unknown	Monitor roof.
7 A	90' x 40' 48' x 60'	6,500	-----	Single-ridge roof.
*7 B	150' x 40'	6,000	-----	Building removed.
7 C	32' x 55'	1,700	-----	Single-ridge roof.
8	48' x 48'	4,200	32' to ridge, 18' to eaves.	Multiple ridge roof.
9	80' x 88'	7,000	-----	Double-ridge roof.
10	48' x 150'	7,200	40' to ridge, height to eaves unknown	Single-ridge roof.
11 A	44' x 95'	4,200	40' to ridge, height to eaves unknown	Single-ridge roof.
11 B	65' x 75'	4,900	-----	Double-ridge roof.
*12	44' x 150'	6,500	-----	Building removed.
*13 A	44' x 150'	6,500	-----	Building removed.

Industrial Report No. 9, Cont'd.

Building	Dimensions	Area in Sq.Ft.	Height	Remarks
13 B	32' x 180'	5,800	27' to ridge, 17' to eaves.	Single-ridge roof.
14	110' x 44'	4,800	27' to ridge, 17' to eaves.	Single-ridge roof.
15 A	120' x 44'	5,300	27' to ridge, 17' to eaves.	Single-ridge roof.
15 B	32' x 52'	1,600	20' to ridge; 10' to eaves.	Single-ridge roof.
16 A	55' x 90'	5,000	50' to ridge; 32' to eaves.	Monitor roof.
16 B	110' x 72'	8,000	-----	Single-ridge roof.
17	120' x 52'	6,300	-----	Single-ridge roof.
18	200' x 210' 120' x 60'	49,000	25' to ridge, height to eaves unknown	Sawtooth roof.
19 A	50' x 90'	4,500	-----	Single-ridge roof.
19 B	80' x 85'.	7,000	-----	Flat roof.
20	140' x 32' 55' x 32'	4,500	15' to ridge, height to eaves unknown	Single-ridge roof.

TOTAL ROOF AREA: 467,500 square feet.

*Buildings removed not included in total.

Reference photography:

3PR4M 17--1V:18, 19; scale 1:68,000; 23 November 1944.
3PR4M 17--2:9-11; scale 1:17,000; 23 November 1944.
3PR5M 13--1V:11, 12; scale 1:64,000; 14 January 1945.
3PR5M 13--2:46-48; scale 1:16,000; 14 January 1945.
3PR5M 13--3R:52, 53; scale 1:10,100; 14 January 1945.
3PR5M 13--3L:53, 54; scale 1:10,100; 14 January 1945.
3PR5M 73--1V:35-37; scale 1:64,000; 9 March 1945.
3PR5M 73--2:32-35; scale 1:16,000; 9 March 1945.
3PR5M 73--3R:29-31; scale 1:9,600; 9 March 1945.
3PR5M 78--1V:58-60; scale 1:63,000; 12 March 1945.
3PR5M 78--2:37, 38; scale 1:15,700; 12 March 1945.
3PR5M 78--3R:65, 66; scale 1:9,400; 12 March 1945.
3PR5M 79--1V:37-39; scale 1:62,000; 12 March 1945.
3PR5M 79--2:23-26; scale 1:15,500; 12 March 1945.
3PR5M 79--3L:29-32; scale 1:9,300; 12 March 1945.
3PR5M 80--1V:29-31; scale 1:64,000; 13 March 1945.
3PR5M 80--2:21-24; scale 1:16,000; 13 March 1945.
3PR5M 80--3R:12-15; scale 1:9,600; 13 March 1945.

No strike photography.

Previous reports covering Targets 198 and 2010:

3PRS Photo Interpretation Report No. 25; 16 November 1944.
3PRS Photo Interpretation Report No. 26, 25 November 1944.

Industrial Report No. 9, Cont'd.

CIU Survey Report No. 48, 16 March 1945.
CIU Damage Assessment Flash Report No. 6, 25 March 1945.

Annotated and attached:

Plant plan.
Prints 3PR5M 73--3R:30, 31 (stereo pair).
Print 3PR5M 73--3L:26 (showing Target 1828).
3PR5M 96--1R:54 (oblique).
3PR5M 80--3R:14 (showing buildings removed).

Approved.....
HAMILTON D. DARBY
MAJOR, AC

DISTRIBUTION: "B"

PR 5 M73-3R:30

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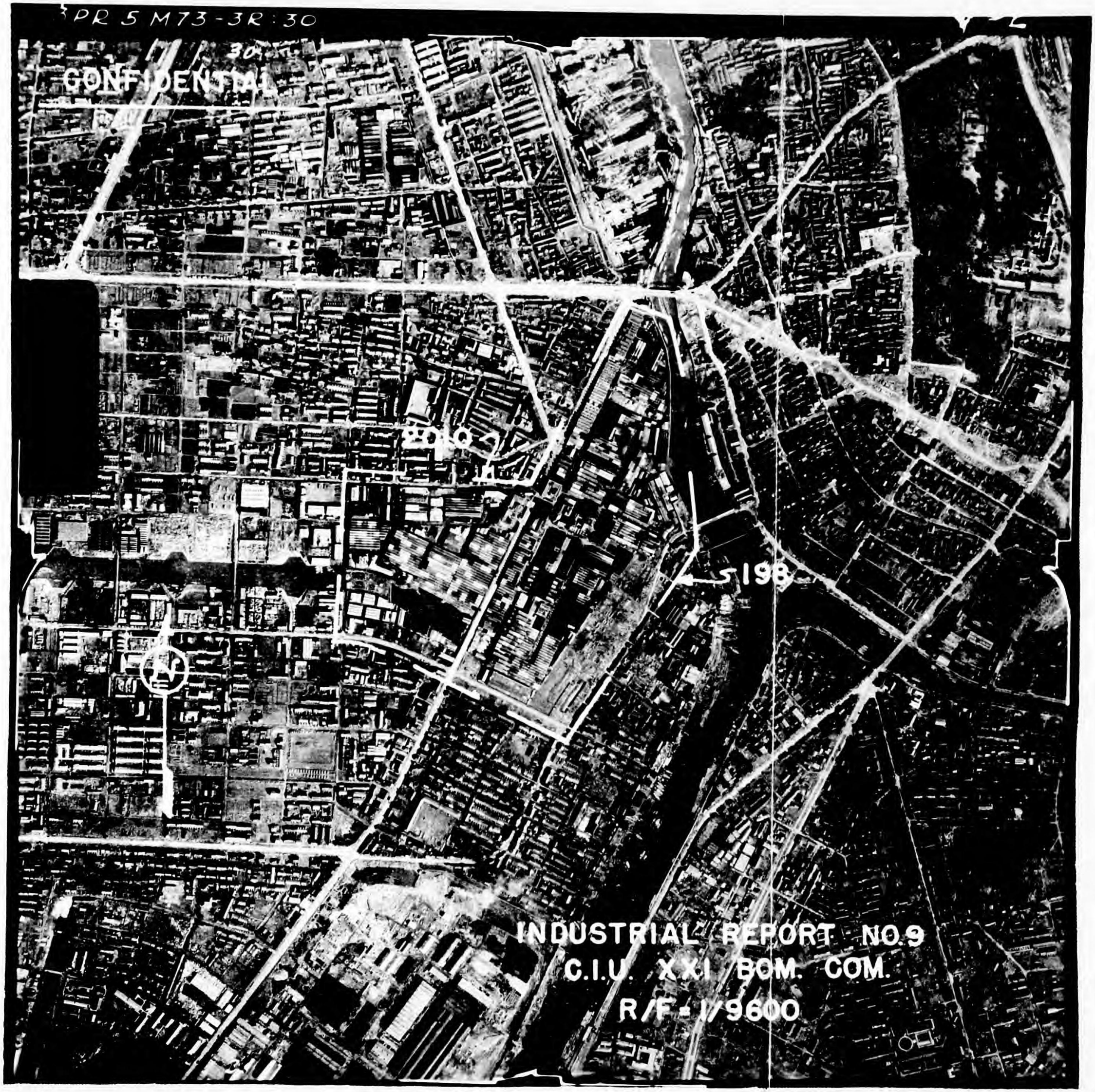

FRUS M73-3R 31

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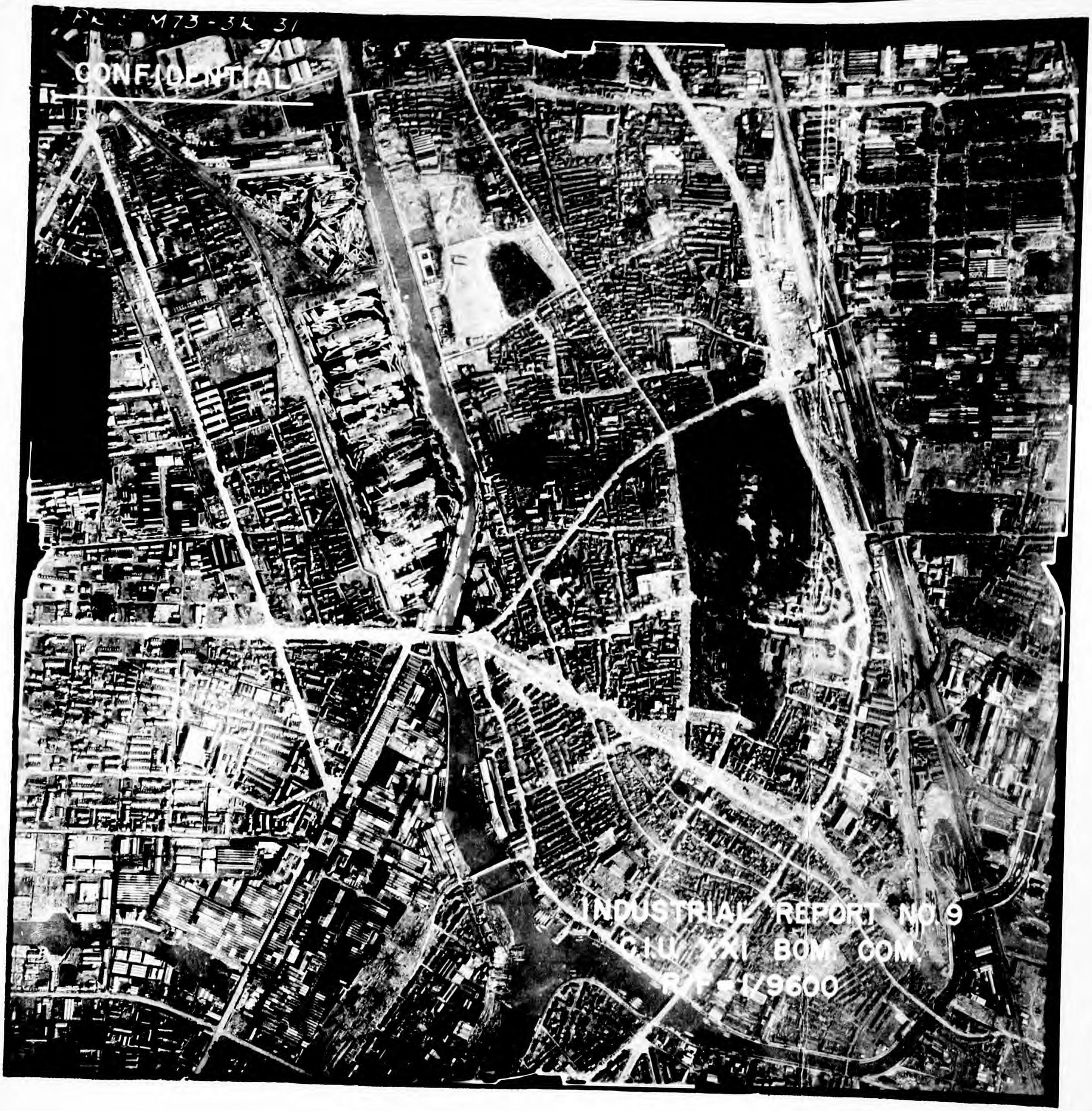

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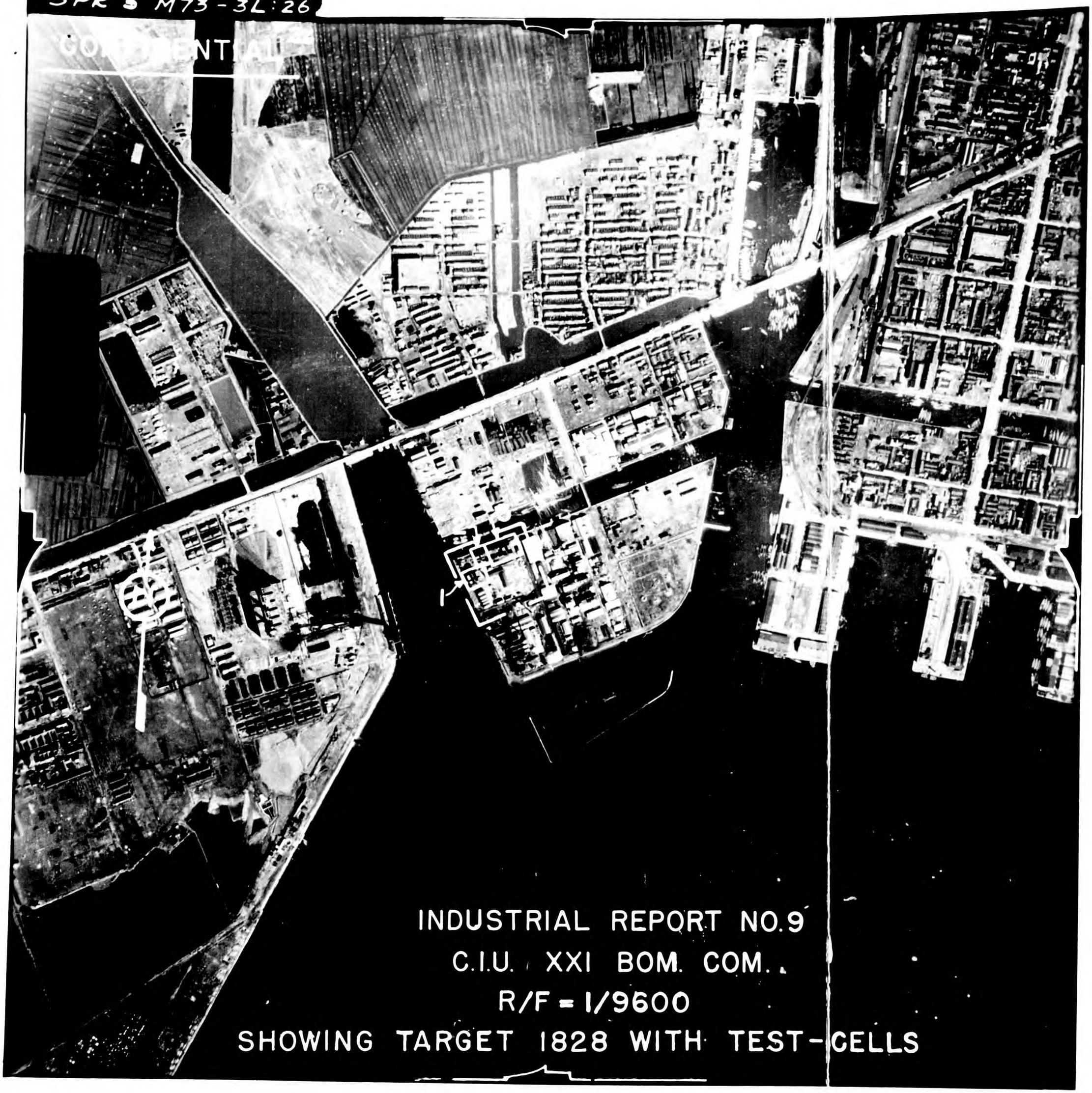


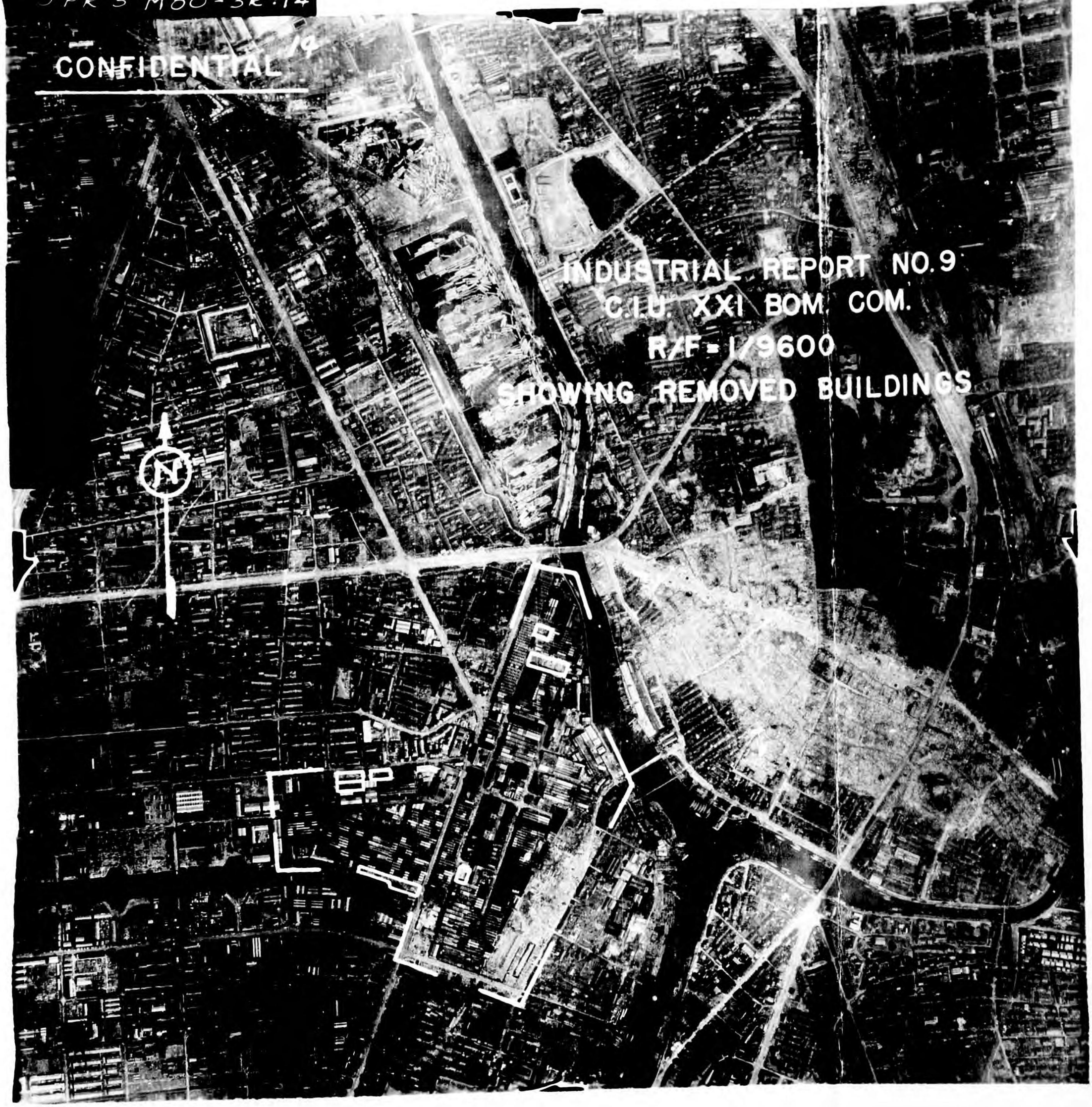
INDUSTRIAL REPORT NO.9
C.I.U. / XXI BOM. COM..
R/F = 1/9600
SHOWING TARGET 1828 WITH TEST-CELLS

3 PR 5 M80-3R:14

14

CONFIDENTIAL

INDUSTRIAL REPORT NO. 9
C.I.U. XXI BOM. COM.
R/F - 1/9600
SHOWING REMOVED BUILDINGS



FOR 5 M46-IR 54

54

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I,B.1

AICHI Aircraft Works (ATSUTA)

AOF 90.20 Target 198. PW was pay clerk for 2 months in 1944 at this plant. Besides confirming previous information, PW added the following:

Factories on both sides of street car tracks manufacture airplane engines for the EITOKU Plant solely. These factories are enclosed by a 12 ft wooden fance.

The two story office building is constructed of concret and its basement is used as a messhall.

The entire area S of the office building is used as a residential district and is separated from the factories by a fence.

Reference Publication: G-2 SECRET Periodic Report Number 75, dated 2 June 1945 for the period 26 May to 2 June 1945 (AIC R/S 12176)

AICHI Aircraft Works (ATSUTA)

AOF 90.20 Target 198. PW was pay clerk for 2 months in 1944 at this plant. Besides confirming previous information, PW added the following:

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The entire area S of the office building is used as a residential district and is separated from the factories by a fence.

Reference Publication: G-2 SECRET Periodic Report Number 75, dated 2 June 1945 for the period 26 May to 2 June 1945 (AIC R/S 12176)

AICHI NAGOYA (ATSUTA Plant) (35°07' N., 136°54' E.) (Target No. 198)
NACI No. 7B-3-3-90.20- 198 T

This newly-expanded plant now has been definitely established as the manufacturer of most if not all of the AICHI engines. However, it accounts for no more than four percent of the Japanese total; its principal product at present is the Atsuta in-line engine, produced in the section marked "Area D" on the sketch map. Other products include ordnance items such as mines and torpedoes, and airframes.

NAGOYA CASTLE lies four miles to the north, the HORI RIVER is just to the east and about ½ mile to the south is a large new installation which has been identified as a SUMITOMO ALUMINUM factory.

Target 198 covers a total area of about 2,500,000 square feet which is 65% built up and divided into four principal areas as shown on the accompanying sketch map.

Engine test stands are not visible but are located beneath Building 18. Sub-assembly of aircraft is completed here and the sections are shipped by truck to final assembly hangars located near airfields.

The majority of the buildings are modern steel frame, sawtooth roof construction. The roofs are covered with a slate-asbestos composition and are camouflaged with disruptive painting. The floors are concrete and the walls largely glass.

Effective firebreaks are present in the form of a large cleared area to the east and a body of water south of the engine plant.

AOF No.

Recent information assigns Target ~~Number~~ 2010 to the engine section of this installation (Area D on sketch).

[redacted] Target

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TARGET: 2010/198

Objective Area: 90.20

T A R G E T I N F O R M A T I O N S H E E T

90.20-2010/198: Aichi Aircraft Company
Atsuta Plant

Latitude: 35° 07' N
Longtitude: 136° 54' E
Elevation: 10 feet

1. SUMMARY COMMENT: With production at the larger Japanese a/c engine plants seriously curtailed as a result of recent B-29 attacks, 2010/198 is at present given a high priority. Its production of in-line a/c engines formerly represented only a small percentage of total Jap production but now assumes a relatively greater importance.

2. LOCATION & IDENTIFICATION: Nagoya lies on the southern coast of the Ise Bay lowlands, a vast delta surrounded on the north, east and west by mountains rising to 3,000-4,000 feet in elevation, and draining into foot-shaped Ise Bay to the south. This horseshoe shaped area, called the Nobi Plain; is an extensively cultivated agricultural area, and the second largest plain in Japan Proper. A large, blunt peninsula projects eastward from the mainland below the heel of Ise Bay and in conjunction with two pincer-shaped peninsulas projecting from the north and northeast shorelines forms the entrance to the long shallow body of Ise Bay proper. Two smaller bays, Chita and Mikawa, open off Ise Bay from the east, and are inclosed by the two long pincer-shaped peninsulas mentioned above. The boot-shaped peninsula from the north separates Ise Bay from Chita and forms the east shore of the former.

The rivers of this area spill through steep valleys of the surrounding mountains out onto the flat Nobi plain, there to slow their pace and flow southward in broad, looping channels to empty into Ise Bay. High dikes have been erected along most of their lower course to confine the flood waters that sweep this region during the summer months.

Nagoya itself, with its shallow, irregular harbor, is squeezed between the low mountains to the east and the winding Shinoi River which skirts the north and west sides of the city before emptying into Ise Bay. Immediately west of Nagoya the large Kiso River, flowing from the north, enters the bay, and has formed a characteristic delta at that point.

The TARGET is located in the SW corner of the city, on the west bank of the Hori River immediately opposite its junction with a smaller stream from the NE and approximately 2 miles above its mouth at Nagoya Harbor. The target lies in the NW corner of an area roughly triangular in shape, bounded on the east by the Hori River, on the west by the large Naka Canal, and on the north by the main E-W Nagoya-Shimonoishiki highway.

3. TARGET DESCRIPTION: The Atsuta Plant of the Aichi Aircraft Company carries a combination target number - 2010/198. The 198 applies to the eastern and older and larger section of the plant. The 2010 represents the western and newer part of the plant, and the center of the A/C engine production. 198 lies on the E side and 2010 on the west side of an urban highway running NE-SW right through the target area. As seen from the air, 198 is shaped something like a harp, with a N-S dimension of about 2700 feet, and an approximate width of 850 feet. The western section (2010) occupies a site shaped like the head of an axe, approximately 1350 feet E-W and 850 N-S. Thus, the overall outline of 2010/198 looks like an axeblade embedded in the frame of a harp.

The exact nature of the products being manufactured in the older section of the plant (198) is not known. Originally the Aichi Company made watches and precision instruments, and POW sources have reported that aircraft and other precision instruments are now produced in the three northernmost buildings of 198. POW and other intelligence indicates that mines, torpedoes, and other precision ordnance equipment are manufactured in a group of buildings just S of these three, and that airframe components and possibly engine parts may be manufactured in the group of large buildings occupying the southern portion of the site.

On the other hand, it is quite definitely established that the newer western section of the plant (2010) produces aircraft engines, and that the bulk of the Aichi Aircraft Company's engine manufacture takes place here. There is evidence to indicate that the greater part of the engine parts production previously reported at 198 has now been transferred to 2010. The important machine tools used in engine manufacture and assembly are believed to be housed in the large L-shaped building in the SE corner of the plant site, with additional engine parts manufacture and machining taking place in the adjacent smaller building to the W. The absence of any engine test-cells at Target 2010 is explained by the fact that the Aichi Company's Plant, Target 90.20-1828 (located in the Nagoya harbor area about $2\frac{1}{2}$ miles SSW), is reported by Ps/W to be devoted entirely to the testing of Aichi engines. Photo interpretation of 1828 indicates that its facilities for testing the output of engines from 2010/198 are adequate, although it is possible that the

testing may also take place at a/c assembly/modification points and air depots.

There is nothing unusual in the appearance or arrangement of the buildings in the two sections of the plant. Building spacing is notably compact approximately 56.4% of the 2,170,000 sq. ft. of 198's area and 60.5% of the 770,000 sq. ft. of 2010 being roof-covered.

The larger buildings of both plants are light steel-frame, single-story, sawtooth structures, with non-combustible covering of asbestos or metal sheeting for roofs and walls. Most of the smaller buildings in the target area are one-story, with ridge- or monitor-roof construction. The average height of the eaves of the buildings in 198 is approximately 25 feet, and for the more important buildings in 2010 is varies from 15' to 30'. Some buildings are reported to have glass walls. Concrete floors are reported in the newer structures of both plants.

4. IMPORTANCE: The importance of Target 2010/198 stems from the fact that production of the 1200 H.P., 12-cylinder Atsuta in-line engine is known to take place here. Aichi is, with Kawasaki, one of the two known Japanese companies manufacturing in-line engines. These engines have been used in the Navy SE dive-bomber Judy, and in the new SE bomber Seiran, as yet given no Allied code name.

Actually the Aichi Aircraft Company is credited with only a small percentage of the total Japanese production of combat a/c engines, and analysis of this target does not suggest more than an estimated production of 175-200 engines a month. However, the rating of 2010/198 as a target of high priority is based on the fundamental fact that the Japs, more than other nations, have had to concentrate A/C engine production in relatively few plants, and the destruction of any one engine works should have immediate and prolonged effects on the Jap Air Force.

Another interesting bit of information from POW sources but not yet confirmed by other intelligence is that manufacture of airframe components takes place at 198 and that such components (probably fuselage units) are sent for final assembly by truck to Aichi's large assembly plant (Target 1729) located on the Nagoya waterfront approximately 4 miles to the SW.

5. AIMING POINTS: Aiming points will be specified in the Field Order.

TARGET SECTION, A-2
XXI Bomber Command

17 April 1945

JOINT TARGET GROUP–WASHINGTON, D. C.

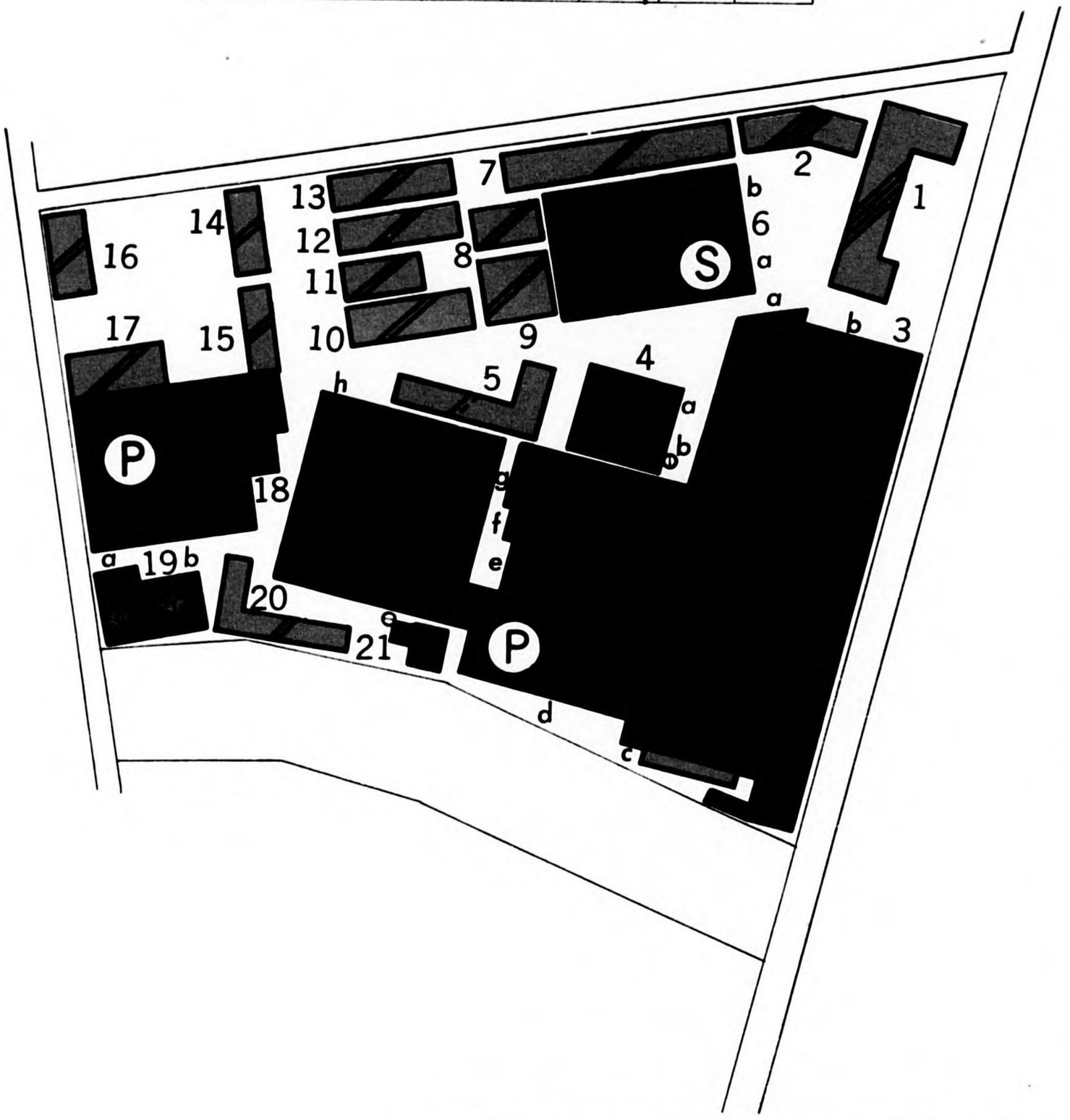
AICHI AIRCRAFT ENGINE WORKS
NAGOYA, JAPAN

TARGET NO. 90.20-2010
APPROX. COORDINATES 35°07′ NORTH 136°54′ EAST
PHOTOGRAPHED 23 NOVEMBER 1944

ILLUSTRATION NO. 90.20-2010-P5
ISSUED JANUARY 1945
CONFIDENTIAL

SCALE 1:3,000

200 0 200 400 600 FEET



HOLDERS OF JTG FOLDERS SHOULD INSERT THIS SHEET IN AIR TARGET SYSTEM FOLDER: JAPANESE AIRCRAFT

FIRE SUSCEPTIBILITY PLAN

PRIMARY BUILDINGS	(P)	FIRE WALL, CERTAIN	
SECONDARY BUILDINGS	(S)	FIRE WALL, PROBABLE	

BUILDINGS		CONTENTS	
COMBUSTIBLE		NON-COMBUSTIBLE	
NON-COMBUSTIBLE		SLIGHTLY COMBUSTIBLE	
FIRE RESISTANT		MODERATELY COMBUSTIBLE	
COMBINATION I.E. COMBUSTIBLE ROOF RESISTANT FLOORS		HIGHLY COMBUSTIBLE	
		EXTREMELY COMBUSTIBLE	
WATER TANK	(W)	INTERMEDIATE VALUES	

AREA IN SQ. FT.	PRIMARY	ALL BLDGS. SHOWN
NO. OF BUILDINGS	2	21
NO. OF FIRE DIVISIONS	2	19
PLAN AREA	335,000	507,000
TOTAL FLOOR AREA	342,000	588,000
SITE AREA	800,000	

PREPARED BY AERONAUTICAL CHART SERVICE, AAF.

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JOINT TARGET GROUP, WASHINGTON, D.C.
TARGET INFORMATION SHEET

Sheet No. 90.20-2010-TI
Date 20 Dec. 1944
Page No. 1 (2 pages)

Obj. Folder 90.20
Obj. Area 90.20
AAF Target No. 90.20-2010

Place Nagoya, Japan
Category Aircraft

Lat.: 35°07'N
Long: 136°54'E
Alt.: 10 feet

NAME OF TARGET AICHI AIRCRAFT ENGINE WORKS, NAGOYA PLANT

ALL PREVIOUS SHEETS CANCELLED

NOTE: Air Objective Folder Nagoya, 90.20, issued 6 July 1944, lists this installation as a reported new engine plant - an extension of Aichi Aircraft Works (TARGET 90.20-198). This new plant is now designated as Aichi Aircraft Engine Works (TARGET 90.20-2010) to distinguish it from the larger old plant (TARGET 90.20-198) now reported to be concentrating on torpedoes, shells, and other munitions.

SIGNIFICANCE

This plant produces the 1200 HP, 12 cylinder in line Atsuta engine used in the Navy single engine dive bomber Judy. Estimated monthly production is 180 engines, a small fraction of total Japanses aero-engine output. Mines, torpedoes and other ordnance are also reported in production here.

LOCATION

In Nagoya, 2½ miles S of the center of the city and 4 miles S of Nagoya castle. Two branches of the Hori River junction about 1600 ft to the E. From this point the river flows SW into Nagoya Harbor about 2 miles S of the plant. An E-W canal now terminates at the SW corner of the plant compound. The old section of this canal along the S side of the plant is partly filled in. A main NE-SW highway separates the the plant from the older Aichi Works (TARGET 90.20-198) adjacent on the E.

DESCRIPTION AND LAYOUT

(Refer to Illustration No. 90.20-2010 P3). The total target area extends about 1350 ft E-W and varies in width from about 600 ft on the W side to 1100 ft on the E. The area is compactly built-up. The important machine tools used in engine manufacture are contained in the large L-shaped building 3 which has a total area of 315,000 sq ft. Engine assembly is also believed carried on in this building. Additional engine parts manufacture and machining facilities are immediately adjacent to the W (building 18); the foundry (building 6) is adjacent on the N. The cluster of small buildings in the NW corner of the compound is used for the manufacture of 13 mm ammunition. These buildings contain rows of old model lathes set on tables.

No engine test cells can be identified at the plant on photography of 23 Nov. 1944. Engine testing may be carried on away from the plant or in one of the shed type structures SW of building 3.

CONSTRUCTION & VULNERABILITY

Buildings housing the critical processes are mostly one-story, short-span (18 ft x 30 ft bays) buildings with sawtooth roofs about 20 ft high to the eaves. There are a few one-story, gabled roof, shed buildings of the same height having medium length spans. All buildings are probably of steel frame construction with roofs of corrugated asbestos or iron.

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RESTRICTED

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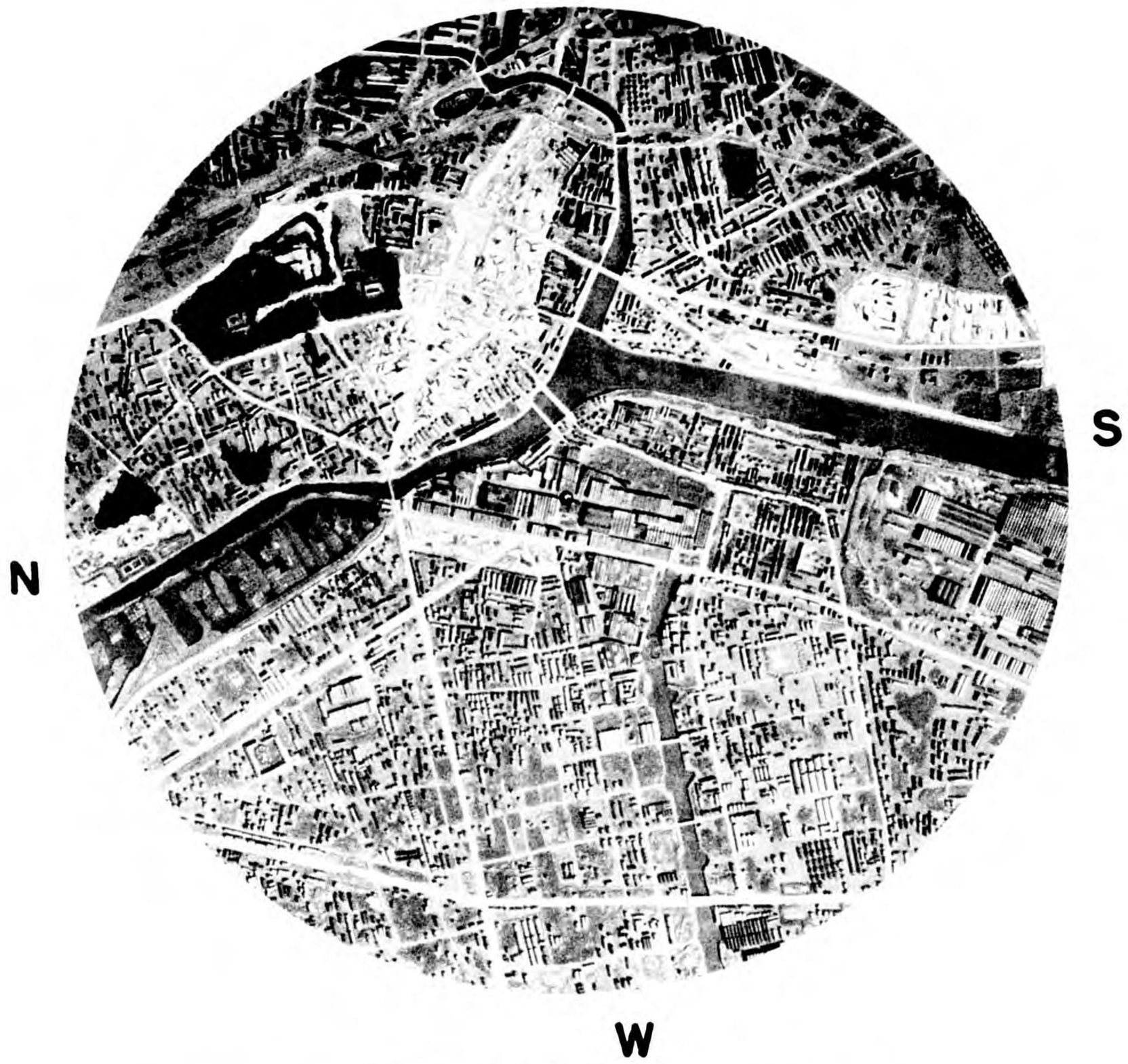
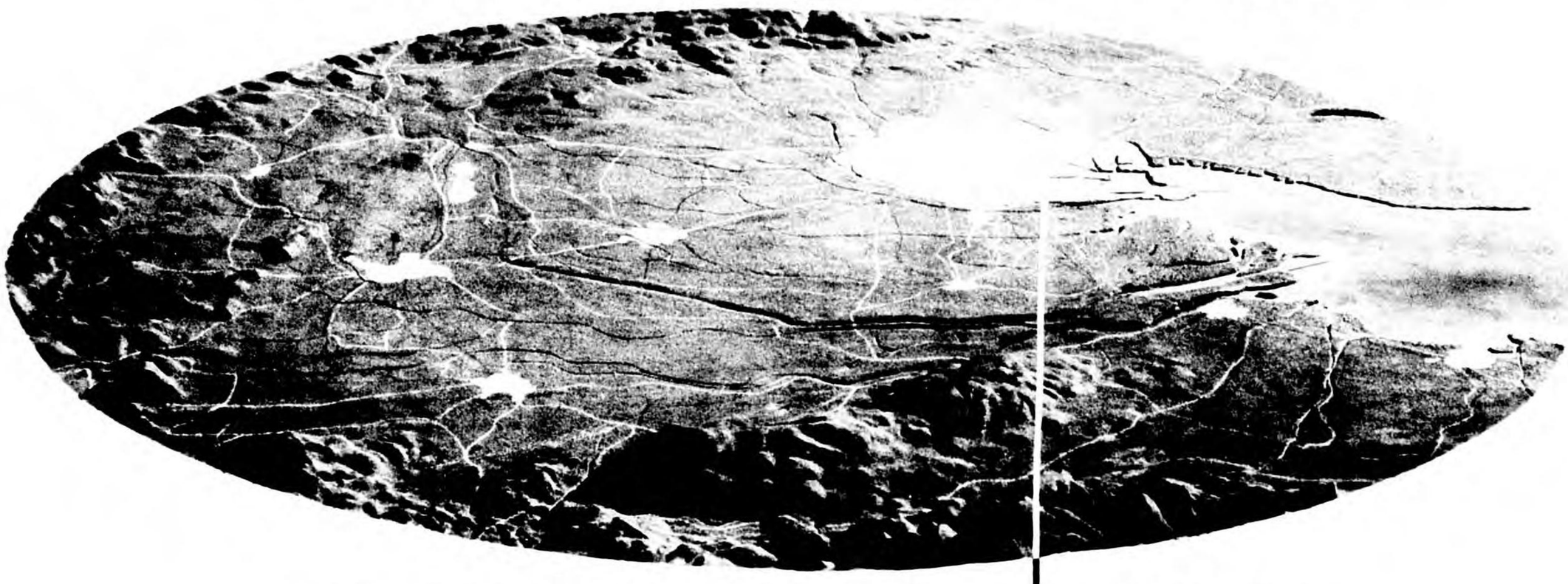


S

N

W

APPROACH | 98° 30' TRUE



APPROACH 98° 30' | TRUE

AICHI A/C WORKS, ATSUTA PLANT

TARGET NO. 90.20 - 198

MODEL NO. A6

22 MAY 1945

A - 2 SECTION XXI BOMBER COMMAND

PREPARED BY 949TH ENGR AVN TOPO CO